The RUBBER AGE

The Only Twice - a - Month Rubber Publication

VOL. XVI. NOVEMBER 25, 1924 NO. 4

DUTCH AUTHORITIES SAY INCREASED PRODUCTION IS DUE TO NEW AREAS

Deny Increased Tapping—Actual Yield in 1923 of Dutch East Indies Plantations was 374 lbs. per Acre Against 264 in Malaya and 270 in Ceylon, Due to Restriction

(Special to THE RUBBER AGE)

The opinion current in Amsterdam and in Holland generally is that a good deal of misconception exists in England regarding the Dutch native rubber position. Dutch authorities point out that it is incorrect to attribute the increased production of the Netherlands East Indies to increased tapping. That new areas are continually coming into production is given as the principal cause. Five, six, seven, and eight years ago, estates were steadily increasing their planted areas, and it is these extensions that are now gradually being tapped, leading to the increased output.

Yield in 1923 Was 374 lbs. per Acre

At the end of 1922 the area under plantation of the Dutch East Indies, according to official statistics, amounted to 920,882 acres, of which 579,500 were in bearing. The total planted area in 1923 was approximately 1,000,000 acres, of which 750,000 were in bearing. Actual yield in 1923 was 374 lb. per acre, against 264 for Malaya and 270 for Ceylon—a vast difference, but not more than would be accounted for by the tapping restriction scheme in force in the two latter countries.

Native production, although considerable, has been exaggerated. Apparently the belief is held in some quarters that all the native rubber dumped on the market is the product of the Netherlands East Indies—a somewhat false impression. The Straits Settlements have extensive plantations of native rubber, and the Stevenson scheme has led to considerable smuggling of native rubber out of the Straits to the Dutch Indies, with the intention of exporting this Straits native rubber as the produce of Dutch colonies. The Dutch view is that only a more rigorous supervision from the side of the British Government may tend to obviate this evil.

An interesting commentary on the position in Sumatra is made by T. J. Cumming, ex-chairman of the Planters' Association of Malaya, who has just completed a tour of the most extensive rubber area on that island. Mr. Cumming claims to have made himself thoroughly conversant with conditions in the six main districts of the Djambi Residency, where most of the native plantations are situated, along the banks of the rivers. He states with regard to the tapping system, that, judging by those adopted in the F.M.S., tapping in Djambi might be

(Continued on Page 104)

CONTENTS

NEWS SECTION

Producing Rubber Seed Oil....104
Tire Dealers' Stocks Low.....105
Goodyear and Fisk Buy Mill..106
Quits As Beacon Falls Head...107
Surplus Stocks Consumed.....108
Nine Months' Exports Large..109
Devises Tire Tester..... 110
Thermoid Favored by Decision.111
To Retire $50,000,000 Bonds...112
Firestone Buys Cotton Mills...115

FEATURES

Development of Rubber Pavement 117
Dubosc Series 119

MARKETS

Cotton and Fabrics.....123
Chemicals 125
Crude Rubber 128

PRODUCTION CURTAILMENT IN AKRON NOT GENERAL

The announcement of the Firestone Tire & Rubber Co. of curtailment in tire production has not as yet been followed by similar announcements from the other big factories in Akron. Curtailment during the past few weeks has been so gradual as to be hardly worthy of note. At this writing daily tire production in the rubber city is estimated at 90,000, a drop of but eight or ten thousand from the peak of the season, which is an indication that the rumored curtailment is not as serious or as widespread as had been anticipated.

Officials of most of the companies state that no general drop off in tire output is expected and that bigger orders should be on their way. Many of the tire dealers, it is said, have delayed their orders in order to take advantage of the new system of spring dating credits.

Hood Rubber Sales Good

In common with a great number of other tire manufacturers, the Hood Rubber Co., Watertown, Mass., has been doing a record business during the last quarter. Orders received have been far ahead of production, although the output has been stepped up to the highest figure in the history of the company, at 2,500 casings a day.

Carolina Rubber Formed

The Carolina Rubber Co., Salisbury, N. C., was recently incorporated to design and manufacture automotive rubber goods. Authorized capital is $300,000. Incorporators are G. R. Rusher, J. E. Prettyman and Virginia Carter, all of Salisbury.

J. C. Wood Joins Vanderbilt

J. C. Wood, who has had 12 years experience with the Goodyear, Brunswick Balke and Republic rubber companies, joined the R. T. Vanderbilt Co., Inc., 50 East 42nd St., New York, recently in a sales capacity. He will work in Indiana, Michigan and part of Ohio.

Published on the 10th and 25th of each month by Gardner Publishing Co., 225 Fourth Ave., N. Y. C. and Highland, N. Y. Address correspondence to N. Y. office. Subscription rates: Domestic, $2.00; Canada, $2.50; Foreign, $3.00.

Entered as Second Class Matter June 10, 1920, at the Post Office at Highland, N. Y. under Act of March 3, 1879. Advertising Rates Furnished on Application. Forms close 10 days before publication. Allow 14 days if proof is required.

PRODUCING RUBBER SEED OIL FOR TESTS IN S.S.

(Special to THE RUBBER AGE*)*

Although the research work carried out during recent years with the object of discovering new uses for rubber, both in its prepared and liquid forms, has met with encouraging success, experiments in the manufacture of by-products have been attended with more or less unsatisfactory results. Rubber-seed oil has lately been the subject of tests, but has so far only been prepared on a relatively small scale, and whether it offers any commercial possibilities yet remains to be seen. Sound, fresh seed is not easy to obtain, but no difficulty has been encountered in extracting the oil, which is claimed to be suitable for use in paints and in soap manufacture. Investigations relative to the economic use of rubber-seed oil and cake are being undertaken by the Departments of Agriculture of the Federated Malay States and the Straits Settlements. The manufacture of soap has been taken up locally, but it is too early for any definite opinion as to the prospects of such an industry, which is, of course, still only in the experimental stage.

Experimenting Along Other Lines

Investigations in other lines are also proceeding, one result having been the recovery by destructive distillation of rubber of a liquid which can be employed as a power spirit. The experiments are being carried out on the Pinji estate of the Malay Rubber Planters, and, according to the R.G.A.'s senior scientific officer, Mr. Pinchin, a small gas engine, after being started on gasoline, worked readily on the rubber distillate. The rubber used was dried tree-scrap and other lower grades, the present intrinsic value of which it is difficult to assess. However, assuming it to be not less than 10 cents Straits (U. S. 5 cents) per lb., any crude oil obtained by distilling such rubber would have an intrinsic value of not less than $1 Straits (U. S. 50 cents) per gallon. Thus, as a crude oil for power purposes, it could not compete against ordinary crude mineral oil.

Rubber as a Denaturent

The possibilities of using the rubber distillate for denaturizing alcohol are also being examined, while it is not improbable that the crude distillate may be effective as a fungicide and germicide. But no definite conclusions have been arrived at so far, and Mr. Pinchin states that unless the distillation results in the recovery of some fairly expensive chemical substance as a by-product—or as principle product—he cannot see much scope for carrying out the work on a large practical scale.

Trustee Starts Many Suits

Twenty-three suits based on promissory notes given in payment for stock of the Tuscora Rubber Co., Dover, Ohio, were recently instituted in Common Pleas Court at New Philadelphia by Willis Bacon, trustee in bankruptcy for the company.

OUR DEPENDENCE ON BRITISH RUBBER

It is apparent to many how closely the automotive and rubber manufacturing industries are allied, but what has not received so much consideration is the outstanding fact that so long as motor cars burn gasoline and run on rubber tires, all three of these great industries—oil with an invested capital of $9,000,000,000; the automotive industry with nearly $3,000,000,000; and rubber manufacturing employing nearly $1,000,000,000; aggregating approximately $13,000,000,000 of American capital—are dependent largely on cultivated rubber for existence.

Yet America with this tremendous capital involved and consuming over 40% of the world's production of plantation rubber owns less than 3% of the planted acreage in this key industry. The British control either financially or politically more than 75% of the output of plantation rubber, the development of which has been due to their vision, pluck and energy.

By their control of this basic industry, the British have the power to close our automobile plants and rubber factories and to depress the price of oil securities. Without plantation rubber the bottom would fall out of these industries. Startling but true!

However, we are fortunate that the control of this important key industry rests in the hands of a nation which fundamentally desires to "play the game" and which realizes that its well-being depends upon the prosperity and good will of the rest of the world.

Sues Tire Dealer

The Globe Rubber Tire Manufacturing Co., Trenton, N. J., through its counsel, J. Irving Davidson, recently brought suit in Mercer Supreme Court against Louis Schlenger, trading as the Central Auto Garage, Perth Amboy, N. J. The suit was started to recover $519, which it is alleged is due for a shipment of tires.

Stephen Douglass Baldwin

Stephen Douglass Baldwin, aged 61, president of the Cincinnati Rubber Manufacturing Co., Cincinnati, Ohio, died recently in his home at Vernon Manor, after an illness of two weeks. Mr. Baldwin went to Cincinnati 40 years ago where he became associated with the Western Supply Co. Later he became manager of the Cincinnati and New York branches of the Whiteman & Barries Manufacturing Co. He organized the Cincinnati Rubber Manufacturing Co. in 1905 and had been president since 1911.

Mr. Baldwin was born in Blanchester, Ohio, on January 30, 1863. His great-grandfather was a native of Virginia and a soldier in the War of 1812. His services were compensated by a land grant in Ohio. He, with his sister, were the first settlers in Marion Township, and the town of Blanchester takes its name from that of his sister, Harriet Blanchett.

INCREASED PRODUCTION IS DUE TO NEW AREAS

(Continued from Page 103)

regarded as heavy, but against this there is a very rapid bark renewal, due presumably to climate, soil, or to jungle undergrowth being allowed to remain under the rubber, instead of being clean weeded as in F.M.S. Whatever the reason is, undoubtedly the bark renewal in Djambi is more rapid than in F.M.S.

Mr. Cumming states that from what he has seen in Djambi he is now convinced that it is not possible to tap a rubber tree "to death." In Malaya there is a general belief that since restriction there has been a general rush to plant new rubber in the Dutch Indies, but Mr. Cumming failed to find evidence of extensive plantings during the last six years, and states that today there is no opening up of land for rubber alone. What little rubber is being planted is on land ordinarily opened up for padi. He estimates that Djambi exported 30 per cent of the total export of native rubber from the Dutch East Indies, and that the export for the current year of Djambi rubber is 20,000 tons (wet weight), while probably a further 10,000 could be harvested with sufficient labor.

John Wesley Rinear

John Wesley Rinear, aged 75, died recently at City Hospital, Akron, Ohio, following an illness of two weeks from infection of the throat. Mr. Rinear was born in West Farmington, Ohio, and for twenty years was engaged in the insurance business in Cleveland. In 1917, he and others, organized the Interlocking Cord Tire & Belting Co., Akron, of which he was a director and treasurer until he retired three years ago. Mr. Rinear is survived by one son, Louis W., one sister, Mrs. C. B. Stanley and four-grandchildren.

Cooper Production Large

According to J. F. Schaefer, vice president and general manager of the Cooper Corporation, Findlay, Ohio, daily production is 1,000 tires, 1,400 inner tubes and 3,000 battery jars. He also reports a heavy demand and unfilled orders for hard rubber pressed goods. The factory employs 275 men.

Giant Reports Good Year

The Giant Tire & Rubber Co., Findlay, Ohio, through its president, C. E. Hart, reports all production records broken for the fiscal year ended Nov. 1. The factory is now making 900 tires and 1,200 inner tubes a day. Hard rubber specialties are also manufactured. The company employs 250 hands.

Buys Antimony Process

The Rare Metals Products Co., Belleville, N. J., has purchased the good-will, trademarks and processes heretofore used by the States Metals Co., Inc., 30 Church St., New York, in the manufacture of all antimony sulphurets.

TIRE DEALERS' STOCKS REPRESENT ONLY A SIX TO EIGHT WEEKS SUPPLY

Although Sales to Dealers in July, August and September Were Considerably Larger than in the Preceding Months, these Tires have been Resold

The average tire dealer has his inventory well reduced for the opening of the late fall and winter season, according to the results of a survey which the Department of Commerce has just completed covering the stocks of 26,161 individual dealers. During the latter part of the summer, tire manufacturers speeded up production and their sales to tire dealers in July, August and September were considerably larger than during the preceding months. The survey revealed rather conclusively that the average dealer was able to pass these tires on to the consumer and can enter the fall and winter season with stocks apparently down to normal. The survey was taken as of Oct. 1.

Average is 53.6 Tires

The 26,161 dealers referred to held average stocks of 53.6 tires each. This figure is considerably under the average found in the hands of dealers participating in a similar but unofficial survey taken as of April 1, 1924; at that time the average stock of 17,797 dealers was computed to be 92.6 casings.

The sharp decline in the average stocks on Oct. 1 as compared with April 1 may be credited in part to the fact that a greater percentage of small dealers participated in the October survey, but it certainly reveals that the seasonal trend under which autumn stocks are normally much reduced is being closely followed this year by tire dealers throughout the country.

Experts in the tire trade, who examined the Department's preliminary figures, which were published in the Nov. 10 issue of THE RUBBER AGE, have stated that the stocks in the hands of dealers represent from a six to an eight weeks supply at the present rate of consumer buying. The same experts gave their opinion that there are 100,000 tire dealers in the United States. On that basis, they would have held at the beginning of October some 5,300,000 tires, if the Department of Commerce's average be applied to the whole. This is approximately an eight weeks supply, if the 1924 replacement demand is about 34,000,000 tires as several tire companies believe it to be.

10 High Pressures to One Balloon

Of the 26,161 dealers reporting stocks of casings, 8,305 had some balloon tires on hand; the average number of balloon tires per dealer was 16.3 Dealers as a whole reported 10 high pressure tires to one balloon tire.

A comparison of the average total casings per dealer with the average inner tubes per dealer shows that approximately 3 inner tubes are stocked for every two casings.

Of the dealers reporting stocks of high pressure casings, 23 per cent reported stocks of less than 10 tires; although numerous, these small dealers held but 2.4 per cent of the total casings reported. Almost 56 per cent of the dealers had stocks of from 10 to 50 casings, and the aggregate number of tires held by them were 27.5 per cent of the total number of tires reported.

Practically all of the tire dealers who furnished information to the Department complied with its request that they indicate the number of makes of tires stocked by them. Forty per cent of the dealers stated that they handled only one make. An additional 36 per cent said that they limited their activities to two makes. The fact that 76 per cent of the dealers do not handle more than two makes indicates a higher degree of specialization than had been generally believed to exist. Only 4.2 per cent of the dealers reported over four makes of tires in stock.

The form on which the dealers reported their stocks of tires and tubes also bore several questions, the replies to which are of interest. For instance, only 17.5 per cent of the dealers reporting derive the major portion of their sales from tires and tubes. This small percentage may be regarded as specializing in the tire business and to all the rest tires and tubes are a side line or are no more important than other lines handled by them such as automobiles, automobile accessories, gas and oil, and general hardware. Of the tire dealers reporting as handling tires, 39.2 per cent said they sold automobiles also, 79.7 per cent sold automobile accessories and 28.3 per cent sold general hardware. The number of those selling gas or oil was 78.4 per cent of the total. Fourteen per cent of the tire dealers reported having facilities for vulcanizing tires.

The Department of Commerce has indicated that tire dealers may secure a complete statement of the findings of the survey of tire dealers' stocks upon application to its Rubber Division at Washington.

Kokomo Salesmen Convene

Over a score of salesmen of the Kokomo Rubber Co., Kokomo, Ind., recently attended the annual sales conference of the company at the factory. The conference was under the direction of Carl B. Gibson, sales manager. Ways and means for increasing sales during 1925 were discussed at length.

A banquet at the Frances Hotel at which the salesmen swapped 1924 experiences in an informal manner was a feature of the conference.

Makes Ohio Valley Report

Charles Greve, referee in bankruptcy of the Ohio Valley Tire & Rubber Co., 1300 Race St., Cincinnati, Ohio, recently filed his report in the United States District Court which showed that general creditors of the bankrupt received 13 per cent of their claims. Liabilities were $12,431.27 and total assets realized were $3,805.73.

AZO BRAND ZINC OXIDES
A PRODUCT WORTHY OF YOUR USE

AMERICAN ZINC SALES CO.
DISTRIBUTORS FOR
AMERICAN ZINC, LEAD & SMELTING CO.

COLUMBUS, P. O. Box 1428 ST. LOUIS, Pierce Bldg. NEW YORK, Prudence Bldg.
Warehouse Stocks—New York, Boston, Montreal, Philadelphia, Cleveland, Cincinnati, Toledo, Indianapolis, Louisville, Chicago, St. Louis, Omaha, Dallas, New Orleans, Trenton, San Francisco, Los Angeles.
Zinc Oxide Plants: Hillsboro, Ill., and Columbus, Ohio.

PURITY
UNIFORMITY
DURABILITY

AZO ZINC OXIDES

Azo ZZZ Lead Free
Azo ZZ—Under 5% Leaded
Azo Z—8 - 10% Leaded

INCREASED CONSUMPTION MARKS THIRD QUARTER

Statistics compiled by the Rubber Association of America from its questionnaire for the third quarter show that consumption of crude rubber increased. In the last quarter 75,432 tons of crude rubber were used by 216 manufacturers reporting, compared with 68,107 tons used by 219 manufacturers in the third quarter. The value of all products shipped showed a corresponding increase, being $242,565 in the third quarter and $208,294 in the preceding quarter.

The consumption of reclaimed rubber was also increased in the third quarter when 15,231 tons were shipped by seven reclaimers in contrast to 11,285 tons in the second quarter. But the use of scrap rubber in the manufacture of reclaimed showed a decrease. In the last three months 22,498 tons were used, compared with 23,773 tons consumed in the preceding quarter.

Inventory of crude rubber in the United States in the third quarter showed 34,067 tons of plantation, 2,606 of Para and 1,052 of other rubbers reported by manufacturers, compared with 49,613 tons of plantation, 3,819 of Para and 775 of other rubbers in the second quarter. Importers and dealers reported 11,076 tons of plantation, 727 of Para and 117 of other rubbers, in contrast to 9,251 tons of plantation, 873 of Para and 77 of other rubbers in the hands of importers and dealers in the third quarter. The grand total of crude rubber in the hands of manufacturers and dealers in the third quarter was 49,645 tons, compared with 64,408 tons in the second quarter.

Lambert Files Appeal

The Lambert Tire & Rubber Co., Barberton, Ohio, has filed an appeal in the United States Circuit Court in Cincinnati against a decree of Federal District Judge D. C. Westenhaver. Judge Westenhaver's decree dismissed the suit of the Lambert company against the Brubaker Tire Co. and William A. Brubaker, Akron, in which patent infringement was alleged. The suits involved patents on tire molds and cushion tires.

SOLE PRODUCERS OF PURE

ASBESTINE

[Registered U. S. Patent Office]

Specially Prepared for Use in Rubber.

Send for Liberal Sample

INTERNATIONAL PULP CO.

41 Park Row, New York, N. Y.

COATING OF LATEX PRESERVES FRUITS

Dipping in rubber latex, already a familiar process in the manufacture of tires, promises to become an important factor in the fruit trade, according to a report to the Pan-Pacific Union, Honolulu, by Dr. P. J. S. Cramer, a Dutch botanist of Buitenzorg, Java.

Dr. Cramer has shipped fresh strawberries coated with latex without loss of flavor or texture, although the berries were two weeks in transit. He has shipped latex-dipped ripe mangos and the mangosteen, which is considered the most delicate of all tropical fruits from Buitenzorg to Paris, where they arrived in perfect condition.

The success of the process depends on the formation of a thin, airtight film over the surface of the fruit. The exclusion of oxygen stops the physiological processes and no change takes place until the rubber film is stripped off. During his experiments, Dr. Cramer dipped one end of a green banana in latex and left the other end untouched. The uncoated end ripened but the coated end remained green.

Dr. Cramer's process may become the basis of important developments in handling tropical produce. Refrigeration in the tropics is expensive, and some of the choicest fruits, like the mangosteen, cannot be shipped even when refrigerated. The use of latex would result in economies in cost and space because refrigerting machinery takes up a good deal of room on cars and vessels.

GOODYEAR AND FISK JOIN IN BUYING FABRIC MILL

The Goodyear Tire & Rubber Co., Akron, Ohio, and the Fisk Rubber Co., Chicopee Falls, Mass., jointly have purchased the Rotch Mill of the American Cotton Co., New Bedford, Mass. The announcement of the purchase followed closely on the heels of the news that Firestone had bought a fabric mill in Fall River.

Financial arrangements are pending. It is not yet determined whether the newly acquired property will be operated as a unit for the account of both companies or whether a physical division will be made.

The Fisk Rubber Co. already owns plants for the production of tire fabrics at Westerly and Pawtucket, R. I. and leases a similar factory at Jewett City, Conn. The Goodyear Tire & Rubber Co. owns cotton mills at Killingly, Conn. and in California, in addition to 37,000 acres of cotton land in Arizona.

Scrap Warehouse Destroyed

Fire recently destroyed the warehouse of the Buckeye Iron, Metal & Rubber Co., 381 East Fulton St., Columbus, Ohio. The company is owned by Leo H. Papier and Joseph Papier. Loss was estimated at $1,500.

EXHIBITING AT WEMBLEY BENEFITED RUBBER TRADE

With the closing of the Empire Exhibition at Wembley early in November the greatest exposition the world has ever known passed away into a memory. Its passing was typical of its short but glorious career, for the closing ceremony was as majestic a spectacle as was the opening. Despite the fact that it has been persistently dogged by bad weather, it has been acclaimed on all sides as a success far greater than ever anticipated. The total paid attendance has been approximately 17,500,000, an average of over 105,000 per day during the 166 days of its run.

Financially It Was a Loss

The attendance necessary to have made it a direct financial success was estimated as 30,000,000, and consequently, considered simply from the showman's viewpoint it has been a loss. But in one of the wettest seasons on record a greater number of visitors could not have been expected.

So far as the rubber industry was concerned, the results must largely be indirect and cannot therefore be estimated by the usual standards. The exhibitors connected with the trade are unanimous in expressing their satisfaction with the results. Malaya, which supplies three-fourths of the world's supply of plantation rubber, did not hope to extend her rubber trade through her pavilion at Wembley. Mr Caldicott, the Malayan Exhibition Commissioner states that the present over-production of rubber made it impossible for the growers to hope for increased orders, so they set themselves to find new uses for rubber; hence the comprehensive exhibit of every use to which rubber could be put, in their pavilion. The Rubber Growers' Association was responsible for this work, and two manufacturing concerns retailed small rubber articles to the visitors, selling nearly $50,000 during the exposition. In addition approximately eight tons of rubber mats have been retailed from the stall.

Canada also has been highly gratified with the results of her pavilion. Great interest was shown in the Canadian Goodyear Co.'s exhibit and also in that of the Dominion and other rubber manufacturing concern's. The Canadian Trade Commissioner does not think that more than 20 per cent of the exhibitors have the vestige of a fault to find with the fact that they went to Wembley. He is particularly enthusiastic about the interest of foreign buyers, who have represented almost every country.

Miller Declares Dividend

The Miller Rubber Co., Akron, Ohio, recently declared its regular 2 per cent quarterly dividend on preferred stock, together with an additional 1 per cent on back dividends. This leaves preferred back dividends of $2.00 a share to be made up and paves the way for the rumored resumption of dividends on common stock after Jan. 1.

FRANK E. CHURCH RESIGNS AS BEACON FALLS PRESIDENT TO JOIN U. S. RUBBER

Beacon Falls Directors Elect Clinton E. Little to Succeed Him as President and Henry C. Wagner, Vice President —Church Becomes Manager of Footwear Sales for U. S.

At a recent meeting of directors of the Beacon Falls Rubber Shoe Co., Beacon Falls, Conn., Frank E. Church tendered his resignation and Clinton E. Little was elected to succeed him. Henry C. Wagner, general manager of both plants of the Beacon Falls company, was elected vice president.

Mr. Church has been appointed manager of footwear sales for the United States Rubber Co. with headquarters in New York and has already taken up his new duties. He was at one time branch manager of the United States Rubber Co. at St. Paul, Minn., which position he resigned to become president of the Beacon Falls Rubber Shoe Co. in the spring of 1921. He is a director of the Naugatuck National Bank.

Clinton E. Little joined the Beacon Falls Rubber Shoe Co. as a salesman at the time of its organization in 1899 and later became sales manager of the New York branch. From this position he was appointed general sales manager, resigning in the spring of 1922 to become manager of soles and heels for the United States Rubber Co. He quit this position recently to return to the Beacon Falls company. In his youth, Mr. Little worked as a bootmaker in the plant of the old Colchester Rubber Co. and later in the cutting room of the Bourne Rubber Co. in Providence. He is a member of the New York Sales Managers' Club.

Henry C. Wagner, general factory manager of the Beacon Falls Rubber Shoe Co. since its reorganization in June, 1921, and who was elected vice president at the recent directors' meeting, has long experience in the manufacture of rubber footwear. He was in the employ of the United States Rubber Co. for more than 25 years. Mr. Wagner is a native of Milltown, N. J. He commenced his rubber career with the Meyer Rubber Co. in New Brunswick, N. J. in 1899, later joining the United States Rubber plants at Bristol, R. I. and Woonsocket, R. I. in an official capacity.

OCTOBER IMPORTS OF CRUDE SHOW INCREASE

Shipments of crude rubber to the United States are steadily increasing. According to statistics just issued by the Rubber Association of America, October importations aggregated 37,157 tons, compared with 19,662 tons in October, 1923, and 29,000 tons in September, 1924. Importations of plantations were 34,073 tons, of which 31,800 came in at New York, 1,226 at Baltimore, 575 at Boston and 17 at Philadelphia. At Los Angeles 455 tons were imported.

Of the 34,073 tons of plantations, 10,354 were imported from Singapore; 6,749 from London; 3,668 from Colombo; 3,587 from Belawan-Deli; 2,147 from Batavia; and 1,654 from Sourabaya. In October 613 tons of Africans were imported, compared with 263 in September. Centrals and Guayule totaled 299 tons, against 252 tons imported in the previous month. Paras shipped to this country in October totaled 2,172 tons, compared with 123 tons in September.

During the 1924 period including October 261,018 tons of crude rubber were imported, compared with 258,595½ tons shipped to the United States in the same period last year.

Flexide Rubber Organized

The Flexide Rubber Co., Columbus, Ohio, was recently incorporated by Frank H. Burns and George H. Grahan. Authorized capital is $10,000.

Our MILLIONTH Pound of

DIPHENYL-GUANIDINE

The demand for DIPHENYL-GUANIDINE

Is due to these qualities:

1. Non-poisonous to handle, odorless and free from all objectionable fumes. No special means of handling are necessary, as it is a finely ground, dry, non-hygroscopic powder.
2. It is applicable to every class of rubber compound, and works in conjunction with all compounding ingredients.
3. Properly compounded, stocks age extremely well.
4. Produces pure gum compounds with a very high resistance to tear, therefore valuable in tube stocks.
5. It keeps the rubber in a non-polymerized state which is most conducive to good ageing.

BALLOON TIRES require a toughness of tread best secured with D. P. G.

Was Manufactured and Shipped November 22nd.

—and not one pound was returned for re-processing!

ONE million pounds of the leading rubber accelerator! A manufacturing record—a quantity record—a satisfaction record—of which any firm might be proud.

The users of D.P.G. have made this record possible. They know that D.P.G. is the established standard for accelerators. It is so considered in the laboratories of the industry.

The record of D.P.G. has a significance for every manufacturer of rubber. It is assurance to him that results from rubber processes are positive and profitable when D.P.G. is added to the batch. Unsurpassed quality and uniformity are the natural results of our four years' continuous manufacture.

DOVAN CHEMICAL CORPORATION

THIRTY CHURCH ST. • NEW YORK CITY

EST. DOVAN 1920

REPRESENTED BY: J. A. Kendall, Akron; J. E. Odell, Boston; American Oil & Supply Co., Trenton; T. E. O'Reilly, Ltd., Toronto and Montreal.

REPRESENTED BY: Martin, Hoyt & Milne, San Francisco and Los Angeles; Buckleton & Co., Ltd., 13 Rumford St., Liverpool, England.

SURPLUS RUBBER STOCKS IN LONDON ALL CONSUMED

(Special to THE RUBBER AGE*)*

An interesting report on the British rubber position has just been made by Symington & Sinclair. The Stevenson restriction scheme will shortly celebrate its second anniversary, and the aim of the report is to show that the policy adopted has fully vindicated itself by achieving its first object, namely—the clearing of surplus supplies. No one can dispute this, however much he is against the restriction policy as opposed to the natural laws of supply and demand.

No Reserve Stocks

During the next six months it is estimated that production and consumption will approximately balance *with no reserve stocks for an emergency.* This takes into account production in all areas—restricted or otherwise. Regarding the world's consumption of rubber during 1925, Symington & Sinclair estimate for 500,000 tons, which is 50,000 tons more than expected by H. Eric Miller in his recent address as chairman of Harrisons & Grosfield, Ltd.

In the circumstances further rise in the price of the raw commodity appears practically certain. The shrinkage in London stocks continues steadily. At the time of writing the returns record a further heavy depletion to 37,906 tons—the lowest total since October, 1920. In fact, since the beginning of August the steady despatch of consignments has lowered the accumulation by nearly 14,000 tons according to current statistics.

Despite the marked increase in consumption, however, that the further restriction of 5 per cent in the exports, which automatically came into force Nov. 1, reduced the exportable quota to 50 per cent of standard production and when it is enforced the curious position will have been reached, in face of a growing demand, of supplies being compulsorily reduced to the extent of 8,500 tons. This moreover, follows a reduction of 4,250 tons in the quarter just ending. The present position is, of course, the outcome of the fall to below one shilling per pound in the price during the May-July quarter, when the campaign against restriction provoked a setback in values, and thereby brought into operation the drastic clauses of the enactment. At the present figures, stocks represent a bare month's supply.

Piedmont Rubber Formed

The Piedmont Rubber Co., High Point, N. C., was recently incorporated to manufacture rubber goods. Authorized capital is $100,000. Incorporators are Lewis Butler, D. L. Lewis and L. A. Butler.

Tire Storehouse Burned

A building used as a tire storehouse by the Brampton Tire & Rubber Co., Toronto, Ont., was recently destroyed by fire, which, it is believed was started by a spark from a railroad locomotive. Loss is estimated at $6,000, including the building and a stock of new tires.

H. O. CANFIELD TAKES OUT GROUP INSURANCE

Under a combination life, accident and health insurance program, with supplementary welfare advantages, two hundred and seventy-one employees of the H. O. Canfield Co., Bridgeport, Conn., manufacturers of mechanical rubber goods, have obtained protection in the Metropolitan Life Insurance Company. The total coverage amounts to $260,000.

Through the arrangement with the insurance company the cost of the protection is shared by the employer with the workers.

The policies provide $500 life insurance protection for women employees and $1,000 for men, while both classes are entitled to individual health and accident benefits of $10 a week, for a maximum period of twenty-six weeks.

Besides the low cost of the insurance, and exemption from medical examination, another feature of the policies is the disability clause. The insurance company, under this clause, will pay to any policyholder becoming totally and permanently disabled, before reaching the age of sixty, the full amount of his insurance in equal monthly installments for a stipulated period.

The service advantages offered by the Metropolitan include a department for the distribution of pamphlets on health and sanitation, and a free visiting nurse service. As the Metropolitan maintains such a service at Bridgeport, its facilities are open to insured employees of the Canfield company.

aerfloted

ARROW BLACK

GRIT, dirt and foreign substances removed by positive gravity separation — the exclusive Huber method that insures a perfect pigment for rubber manufacture.

J. M. HUBER, *Inc.*

Manufacturers

Main Office: 130 West 42nd Street, New York

Factories: SWARTZ, LA., and BRECKENRIDGE, TEXAS

Stock carried at: Baltimore Boston Chicago Cincinnati Cleveland St. Louis Los Angeles New York Philadelphia Toronto, Can. London, Eng. Paris, France Hamburg, Germany

EMBOSSING CALENDERS

For Artificial Leather, Oil Cloth, Carriage and Automobile Covers

DRYING MACHINES

with Copper or tinned iron Cylinders for Cotton Ducks, Drills and Sheetings

The Textile-Finishing Machinery Co.

OFFICE, No. 83 EXCHANGE PLACE

PROVIDENCE, R. I.

The Carter Bell M'f'g *Co.*

Highest Grade

RUBBER SUBSTITUTES

White, Brown & Black

150 Nassau Street New York

NINE MONTHS' EXPORTS OF RUBBER GOODS MUCH LARGER THAN IN 1923

Show Increase of Over $500,000 Thus Far, Indicating Year's Sales Will be Well Over Those for 1923—Tire Exports Fell Off in September—Boots Reach Record Figure

Rubber products shipped from the United States for the first nine months of the present year reached figures of $30,248,084, and exceeded totals for the corresponding period of 1923 by $545,331, according to the Rubber Division of the Department of Commerce. With September registering exports valued at $3,292,441, as compared with $2,623,209 for the same month last year, and with shipments proceeding more steadily this year than last, when the closing months witnessed a severe contraction in exports, it is safe to assume that 1924 total shipments will be well above those for 1923.

Tire Exports Decrease

Tire exports in September numbered 85,095 casings, 59,694 inner tubes and 7,311 solids, as compared with 109,584 casings, 101,781 tubes, and 9,172 solids in August, a decline mostly due to normal seasonal trends. The average value per casing was $13.35 as compared to $12.57 in August and $12.92 in July, establishing a record high monthly unit value for 1924.

Record shipments of rubber boots, rubber belting and rubber toys played a large part in maintaining the rubber goods trade at its relatively high level. Exports of waterproof footwear included 90,006 pairs of rubber boots, the highest for any month since January 1922, and 340,012 pairs of rubber shoes, a record exceeded only in the previous month, when 350,549 pairs were exported. Rubber belting exported in September amounted to 377,344 pounds, a record exceeded only once previously, in May 1923, when 385,175 pounds were shipped. The exports of rubber toys, balls, and balloons consisted of 89,476 pounds valued at $90,016 a new high record for this year. Shipments of water bottles and syringes were also relatively high, as well as exports of rubber thread, while other classes of rubber goods experienced an average trade during September.

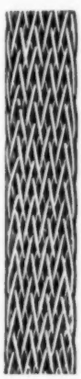
SALE OF UNITED & GLOBE FACTORY IS CONFIRMED

Judge Runyon in Federal Court recently confirmed the sale of the factory of the United & Globe Rubber Corp., Trenton, N. J., to Peter Vrendenburgh for $250,000 payable in $50,000 cash and $200,000 in ten years on 6 per cent bonds of a corporation organized to operate the factory.

Confirmation was made on the application of Nathan Bilder, counsel for J. Philip Bird and Edward C. Rose, receivers, appointed July 10, 1923, and who have operated the business since their appointment. The matter came before the court on an order to show cause why the offer should not be accepted.

The factory will be operated by a new company to be known as the United & Globe Rubber Co. Officers are Peter Vrendenburgh, president; H. L. D. Lewis, vice president and treasurer; and D. M. Barr, assistant treasurer and secretary. George F. Fisher is factory manager. The directors of the new United company include John S. Broughton, A. Dayton Oliphont, Peter Vrendenburgh, H. L. D. Lewis, Joseph McDermott and F. M. P. Pearse.

The new company has purchased the land, buildings and machinery, patents and trade-marks of the United & Globe Rubber Corp. and will commence business with $150,000 in cash, as its assets, and no liabilities, except the $200,000 six per cent bonds, secured by the factory which had been appraised at $750,000.



Perfect Beads

Entire freedom from bead trouble in the construction of straight side tires is assured by the use of either National "(Patent)" High Tensile Strength, Flat Woven, Bead Braid or our new (Pratt Patent) Bead Cables. These cables, made to dimensions specified, have seven strands, yet only one piece of wire is used without soldered, welded or brazed joint.

Write for working samples of either National flat braid or Pratt cables (no charge to tire manufacturers) and full information as to our products and service.

Our engineering department tests beads and furnishes complete confidential reports as to their stretch, set and bursting point, without charge. Inquiries solicited regarding this special service.

National Standard Company
Niles, Michigan

Est. 1900 Inc. 1919

THE KUHLKE MACHINE CO.

Formerly Jones & Kuhlke

AUTOMOBILE TIRE MOLDS and CORES

GENERAL MACHINE WORK

Akron, Ohio

ARE YOU TRYING TO REACH THE RUBBER MANUFACTURERS?

Then THE RUBBER AGE is the paper to use

—because it is read by executives, superintendents, chemical and mechanical engineers, and purchasing agents in practically every rubber factory in the U. S. and Canada.

—because it is the **only** paper in the field issued twice a month insuring first announcements of all new technical and news developments.

—because its advertising rates are the lowest in the field.

Let us send you complete information in regard to our class of readers, our distribution and our advertising rates.

To effectively cover the rubber field—with its wonderful power of absorption for all kinds of products —you should include THE RUBBER AGE in your present schedule.

HOSE STANDARDIZATION CAMPAIGN SUCCESSFUL

The campaign of the Rubber Association for the standardization of 5/8" rubber garden hose has been a pronounced success thus far. The campaign was instituted by the Mechanical Rubber Goods Manufacturers Division, which has just issued a booklet containing reproductions of the full-page advertisements used in the hardware trade press to point out the advantage of such standardization.

Discussion of the 5/8" hose policy in retail circles brought out a practically unanimous expression of opinion in its favor. The National Retail Hardware Association has approved the policy and over twenty of the state associations also endorsed it. The policy also proved popular in the wholesale field. The National Hardware Association is also overwhelmingly in favor of standardization of 5/8" hose. Out of 920 hardware jobbers, 907 enrolled enthusiastically under the 5/8" banner, which means that over 98½ per cent of the total number of jobber outlets in the country are in accord with the movement.

Fifty thousand copies of the booklet telling of the progress made in 5/8" standardization are being mailed by the Rubber Association to jobbers, dealers and others handling garden hose. Bookings for garden hose in 1923 were 39 per cent for 3/4" hose, 38 per cent for 5/8" and 23 per cent for ½". Indications are that bookings for the 1925 season will be from 60 to 75 per cent for 5/8" hose.

Operating at Capacity

The Studebaker-Wulffe Rubber Co., which operates plants at Marion and Carey, Ohio, announces that 100 persons are now employed at the plant of the old Excel Rubber Co. at Wadsworth where the Studebaker-Wulffe company assumed control last February for the purpose of making tires, rubber mats and rugs, and belts.

The Wadsworth factory is said to be running at full capacity under the direction of T. L. Lytle, local manager, and H. E. Besaw, factory superintendent. The headquarters are at Marion, Ohio, where the following officers are in charge: J. E. Studebaker, president; H. W. Hooper, secretary-treasurer; and B. F. Wulffe, general manager.

Receiver for Reed Rubber

James Moore Eckels, known to the rubber trade as Toledo branch manager for the past eight years of the Ohio Rubber & Textile Co., with factories at Cleveland and Willoughby, Ohio and Huntington, Ind., has been appointed receiver for the Reed Rubber Co., 1156 Dorr St., Toledo, Ohio. Judge James M. Martin in Common Pleas Court named Mr. Eckels under a bond of $5,000.

The Reed Rubber Co. owns one of the finest toy balloon plants in the middle west. It is the intention of the receiver to sell the entire property. He has prepared inventory sheets which may be had upon application.

Beacon Falls Managers Meet

Managers of the various branches of the Beacon Falls Rubber Shoe Co., Beacon Falls, Conn., recently held a two-day conference with officers of the company at the main office. The branch managers attending were: William Bridges, Boston; John J. Meacon, New York; Samuel R. Bush, Chicago; and Raymond Keller, Minneapolis.

Collecting Latex on a Rubber Plantation near Singapore

BUREAU OF STANDARDS DEVISES TIRE TESTER

A test for the durability of automobile tires which may be completed inside of four days, yet which makes it possible to predict the comparative service which may be expected from different kinds of tires, has been devised by the Bureau of Standards in cooperation with the rubber manufacturers. It is embodied in Federal Specification No. 3A, which has been adopted within the past month by the Federal Specifications Board.

Weak points in the tires subjected to this test are found to show up within a very short time, often as little as two days. In service, on the contrary, the tire may last from six months to a year or more. The principal feature of the test is the running of the tire under standard conditions against the rim of a wheel provided with bumps. After a specified period the tire is examined for signs of failure. Tests are also made to determine whether the chemical and physical properties of the materials used are those required by the specifications and found by test to be necessary for the construction of durable tires.

The specification requires the submission for test of one tire out of each five hundred ordered, the sample to be chosen at random. The test is not applicable by the purchaser of individual tires, but is of direct value to the Government departments, to states, municipalities, and large organizations. The individual purchaser, it is believed, will benefit indirectly from the attempt of the manufacturers to maintain their product at the government standard.

FALL RIVER RUBBER CO. SUSTAINS $50,000 LOSS

A fire of undetermined origin, which started in the basement of the Fall River Rubber Co. store, North Main and Bank Sts., Fall River, Mass. recently caused damage estimated at $50,000. The Fall River Rubber Co. occupies the ground floor of the building with the Alaska Fur Co. Three firemen were overcome by fumes and 15 office employees, including several girls had to make their escape from upper stories of the building by jumping out of a window.

New Referee for Knox Tire

Federal Judge John E. Sater in United States District Court at Columbus, Ohio, recently removed R. M. Greer as referee of the bankrupt Knox Tire & Rubber Co., Mt. Vernon, Ohio. The court appointed Frederick N. Sinks, an attorney in Columbus, to succeed Mr. Greer, who, it was charged, made decisions in handling the affairs of the rubber company which, "according to his admissions to the court were consciously erroneous."

Paul M. Ashbaugh, trustee, in a petition filed by George L. Stephen, a stockholder and creditor, was charged with appropriating about $6,000 of the firm's funds to his own use. He will be asked to show cause why he should not be removed.

REVERSAL OF PREVIOUS DECISION FAVORABLE TO THERMOID RUBBER CO.

Court Rules that Thermoid and Johns-Manville Will Not Be Required to Account for Brake Lining Royalties in Suit Brought by Asbestos Brake Co.

Following a re-argument in the Court of Errors and Appeals, the Court recently reversed a previous decision made by it and ruled that the Thermoid Rubber Co., Trenton, N. J. and the Johns-Manville Co., Bound Brook, N. J., will not be required to account for royalties on sales of brake lining manufactured under patent rights held by the Asbestos Brake Co. The royalty agreement was entered into in 1911; it provided for a payment of 10 per cent on all sales of the products manufactured under the patent.

In Litigation Several Years

The recent decision reverses the action of Vice Chancellor Buchanan who issued the first order compelling the accounting, and who were originally upheld in the Court of Errors and Appeals. Several years have been spent in litigation over the question, which was brought into court by Milford C. Massie, of Brooklyn, and other stockholders of the Asbestos Brake Co.

Separate but practically identical answers were filed by the Thermoid and the Johns-Manville companies. Each argued that the contract was binding only upon certain contingencies which never eventuated. It was further held that Mr. Massie had lost his right to sue by remaining silent for eight years. The contention was also advanced that the license agreement constituted a combination in restraint of trade in contravention of the Sherman anti-trust act.

It was also alleged by the defendants that the Asbestos Brake Co. had promised to protect them against infringement of rival manufacturers but that the company had not done this. The Asbestos Brake Co. explained its alleged failure to protect the two companies, charging that the royalties in question were not paid. In reversing the decision the Court declared that because the royalties were not paid was no reason for the Asbestos Brake Co. to fail to protect the other two companies from infringing competition.

The litigation grew out of the patenting of brake lining by three men independently of each other.

R.A. SEES STIMULUS TO TRADE IN WALKWAY CODE

The Rubber Association of America is keeping in close touch with the movement that has been instituted by the American Society of Safety Engineers and the American Institute of Architects for a national safe walkway surface code. Officials of the Rubber Association see a stimulus to increased use of rubber in the form of flooring, matting and safety treads in the formulation of such a code under the auspices of the American Engineering Standards Committee, 29 W. 39th St., New York City.

A special section of the A.E.S.C. has been formed to prepare this national code to insure safe walkways in public buildings, public meeting places, etc. It will cover flooring, stair treads and all walkway surfacings. As rubber flooring is one of the safest and most durable coverings for floors, the trade will readily realize the importance of this movement.

To Begin Operations

The Squires Carbonized Rubber Co., which was recently incorporated with an authorized capital of $250,000, will soon begin manufacturing operations in a large concrete factory near the foot of Wall St., Bridgeport, Conn. The new firm will manufacture hard rubber products. Officers are Alfred Wakelee, president; Nelson J. Wakelee, treasurer; and Arthur C. Squires, secretary.

CABARRUS COTTON MILLS

M. L. CANNON
PRESIDENT & TREASURER

KANNAPOLIS, N. C.

Superior Quality Tire Fabrics

EGYPTIAN-PEELER
KARDED & COMBED
CORD & SQUARE WOVEN

CANNON MILLS, Inc.
Selling Agents

NEW YORK
55 Worth St.

CHICAGO
327 S. La Salle St.

A. W. REID
Representative

GOODYEAR WORKING ON PLAN TO RETIRE $50,000,000 IN BONDS

Plan Calls for Refunding $50,000,000 in Bonds and Possibly Retirement of $15,000,000 Cumulative Prior Preference Stock—Company Would Save $1,000,000 a Year

It was recently learned that officials of the Goodyear Tire & Rubber Co., Akron, are working with their bankers, Dillon, Read & Co. on plans for the retirement of certain bonds. The plans provide for the refunding at a lower coupon rate of nearly $50,000,000 of bonds and possibly the retirement of $15,000,000 of outstanding cumulative prior preference stock.

The present time is regarded as propitious for the undertaking of the task as prevailing interest rates are much lower than they were when these issues were floated and the rubber industry is in a prosperous condition. The whole plan is so large that its completion is not expected for more than a year.

Stock Has Advanced

A general advance in the open market of the company's bonds and stocks foreshadowed plans for reducing its carrying charges. At this writing, the common stock sold on the New York Curb at 18⅝. On the New York Stock Exchange the preferred stock sold for 78⅝, and the prior preference 8 per cent cumulative stock brought 103¼. Eight per cent sinking fund gold debentures advanced to 109¾ and the first sinking fund gold 8 per cent bonds were steady at 120.

Refunding of the two 8 per cent bond issues would be done, it was reported, through the sale of a $50,000,000 issue of bonds bearing a coupon rate of 2 per cent less. There were outsanding, as of May 1, 1924, $25,500,000 of the first sinking fund 8s and $23,500,000 of 8 per cent sinking fund gold debentures. The first issue will mature on May 1, 1941, and is callable at 120, and the debentures mature May 1, 1931 and are callable at 110. The prior preference, which might figure in the plan, although such action is not now expected, is also callab'e at 110. By refunding the bonds the company would save $1,000,000 a year. In addition, it would lessen the $3,000,000 a year necessary to meet sinking fund provisions.

May Retire Preference Stock

Under the contract for the issuance of the 8 per cent prior preference cumulative preferred stock, provision was made that this issue should be retired by the sinking fund just as the outstanding bond issues were retired. The question has arisen, therefore, as to whether the company is calling in its 8 per cent bond issues in whole would be forced to also call in its prior preference preferred. To test this proposition, the company's directors are considering the advisability of the prior preference stockholders to call the bonds but to leave the prior preference issue outstanding. Approval, it is believed, will be given, but if not, the Goodyear company will be obliged to include that issue in its refunding plan. As the prior preference stock was selling within one-quarter of a point of the callable price, it was pointed out that the stockholders, should they want to cash their holdings for the redemption price set, could readily get it through sales in the open market. Only $15,000,000 of this issue is still outstanding, the company having redeemed in the last two years half of the stock originally sold.

Neither the preferred stock, which ranks next to the prior preference issue, nor the common stock is now on a dividend basis. Their advances were attributed to the expectation that the refunding plan in prospect, through trimming down the company's carrying charges, would give it a better chance of paying dividends.

As of Dec. 31, 1923, the company's balance sheet showed current assets totaling $56,584,789, against current liabilities aggregating $7,612,707, leaving a net working capital of $48,972,082.

HERBERT DUPUY ELECTED PENNSYLVANIA PRESIDENT

Herbert DuPuy, chairman of the board of the Pennsylvania Rubber Co. of America, Inc., Jeanette, Pa., was recently elected president of the company. The change was brought about by the resignation of his son, Charles M. DuPuy, the former president, who had not been enjoying good health. In addition to Mr. Herbert DuPuy's important duties with Pennsylvania Rubber, he was at one time chairman of the Crucible Steel Co. of America.

Grasselli Names Ad Agency

The Grasselli Chemical Co., Cleveland, Ohio, has placed its advertising account with the Tiffany-Bayless Co., an advertising agency, in Cleveland. Agricultural and business papers are used to advertise the products of the company.

Rubber Brokers Incorporate

Pell & Easley, Inc., New York City, have been chartered at Albany with an authorized capital of $10,000 to deal in crude rubber. Directors and subscribers are George E. Pell, 82 Beaver St.; William T. Easley, 44 Cedar St.; and J. Q. Perry, 84 William, St., New York City. J. Q. Perry is also attorney for the new company.

PRODUCTION INCREASES BUT SHIPMENTS DECLINE

Statistics just issued by the Rubber Association of America show that production of all types of tires, excepting balloons, increased in September but that shipments declined. Production of high pressure cords was 2,077,359, compared to 1,983,530 in August. Shipments were 1,959,306 in September , in contrast to 2,669,087. September inventory of high pressure tires was 2,731,376 in September, compared with 2,679,205 in August.

In September 479,755 balloon casings were produced by 55 manufacturers, compared with 501,166 in August. Shipments of these tires totaled 398,324 in September, compared with 435,572 in the preceding month. Inventory in September was 850,430 balloon casings, compared with an inventory in August of 765,002. Production of fabric tires in September totaled 973,764, compared with 750,045 in August. Shipments in September were 1,046,609, compared with 1,094,455 in the preceding month. Fabric tire inventory in August totaled 942,599, contrasting with 1,032,809 in August.

Ten companies reported a total production of 41,711 solid tires and 12,395 cushion tires in September; shipments were 48,345 solids and 11,234 cushions.

The production of balloon inner tubes showed an increase over August, 466,848 being produced in September, compared with 427,302 in August. September shipments were 357,765 and August shipments 369,335. Inventory of low pressure inner tubes in September was 885,000, compared with 751,732 in August.

W. B. WIEGAND DINED ON RETURN TO CANADA

Officials of the Ames-Holden Tire & Rubber Co., Kitchener, Ont., recently tendered a dinner to W. B. Wiegand, vice president and general manager, upon his return to Canada from a trip to Great Britain and the Continent.

Mr. Wiegand spoke at length of his visit to the rubber factories at Parmis, Hannover, Birmingham and Leyland. He referred to the different manufacturing methods practised in England, France and Germany, stating that in each country there was increasing evidence of the whole-hearted application of research and scientific study, designed to minimize wastage both in material and labor and secure immunity from variation in product. In particular the mechanicalization of practically all operations seemed uppermost in the minds of the foreign factory managers who were striving to lower production costs.

Mr. Wiegand found the balloon tire much less widely used on the other side, but a distinct evidence of its imminent application to many motor cars, so that its ultimate adoption in Europe seems inevitable. Foreign officials are all looking forward to material increases in motor car registrations the moment economic conditions improve, he said.

COMPLETE STUDY OF ENGINEERING EDUCATION IN RUBBER INDUSTRY

National Industrial Conference Board Learns that 23 Per Cent of the Employees in Important Positions are College Graduates—Need for them Growing

The National Industrial Conference Board of 247 Park Avenue, New York, has commenced the important task of investigating in the chief basic industries of the country how engineering education may best be adjusted to meet industrial needs.

The board estimates that American industry may need 400,000 more persons for this type of responsible position in 1930 than it used in 1920. This is based on the increasing ratio of administrators, supervisors and technical experts to the total number gainfully employed in industry, as detailed in the United States Census of Occupations.

The board has selected for specific study 10 or 12 major branches of American industry in order to find what technical men are now in industry, what positions they occupy and what are their activities, what further opportunities the industry offers for additional employment of technically trained men, and in what respect the technical colleges may adapt their programs to the practical requirements of industry. The situation in each industry is being studied separately.

The board has now completed the first two of the series of investigations covering the rubber and the pulp and paper industries. Seventy-five companies cooperated with the board, covering 113 plants, over 100,000 employees and representing more than 83 per cent of the rubber industry. The board finds that of the total number of employees, 7 per cent occupy important positions, and that of these 7 per cent, 23 per cent are college graduates.

Theory Versus Practice

One of the problems existing in adapting college graduates to responsible positions in industry is the difficulty of obtaining practical experience in line with theoretical instructions. Several possible ways of accomplishing such an end in some measure are indicated in the reports, such as summer employment and the cooperative college course, and it was found that very few of the companies offer such opportunities to technical college men.

The problem of selection of employment by the college graduates and of men for employment by the companies was canvassed. This showed that quite a considerable number of men, about 60 per cent of the total, had made a conscious choice of the rubber industry as a field for employment. The companies have so far developed very little in the way of systematic method or in the way of selection of technically trained men for employment and development in the industries.

To Publish Complete Findings

When the entire series is completed, the findings will be analyzed and compared and published by the board in a composite report on "Technical Education and American Industry." In that report, specific points will be discussed at length and complete sections devoted to each of the industries previously summarized. The board points out that the gratifying cooperation on the part of industrial executives is ample evidence of the importance with which industry regards this problem.

Paratex Rubber Formed

The Paratex Rubber Co., Garfield, N. J., was recently incorporated to manufacture a variety of rubber products. Authorized capital is $500,000 in preferred stock and 50,000 shares of no par value.

THE VULCANIZED RUBBER CO.
Manufacturers of
HARD RUBBER GOODS
of Every Description
251 FOURTH AVENUE
New York

When you feel the need of buying or selling rubber equipment, are looking for competent help or seeking a responsible position, the classified column of THE RUBBER AGE, the only "twice-a-month" rubber publication will prove advantageous. It covers the field first.

CARBON BLACKS
OF HIGHEST QUALITIES
Godfrey L. Cabot, Inc.
940 Old South Bldg. — BOSTON
611 Metropolitan Bldg. — AKRON
STOCKS IN
AKRON BOSTON CHICAGO CINCINNATI CLEVELAND LOS ANGELES NEW YORK PITTSBURGH SAN FRANCISCO ST. LOUIS TRENTON
AND PRINCIPAL FOREIGN CITIES

MANY TIRE DEALERS AT N.T.D.A. CONVENTION

All previous records for attendance were shattered when more than 1,000 delegates poured into Akron to attend the Fifth Annual Convention of the National Tire Dealers Association at the Akron Armory, Nov. 18, 19 and 20. With every Akron tire manufacturer offering heartier cooperation than ever before the convention now in session promises to outstrip all others in the matter of work accomplished to establish the business of retailing tires on a plane with other merchandising enterprises.

23 Associations Represented

Local tire dealers associations from 23 cities were represented at this convention which was planned by a committee from the Akron Tire Dealers association consisting of Arthur Roderick, chairman, Fred and Henry Cooke, O. B. Phillips, Moses Weil, Ray Purviance, V. D. Blizzard, Lewis B. Gast and Leo A. Waickman.

On Sunday at the Hotel Portage a program of work was outlined by the national directors including President George J. Burger of New York; Vice President Thomas F. Whitehead of Chicago; Nathaniel W. Howell of Wilmington, Del.; E. P. Farley of Minneapolis; Clay D. Manville of Pittsburgh; Herbert A. Ruhnke of Milwaukee; and P. J. Quigley of Memphis, Tenn.

Only dealers who handle tires of standard makes are eligible to membership in the N.T.D.A., which is emphatically opposed to the traffic in so-called "gyp" or cut rate tires. Affiliated locals are now flourishing in Akron, O., Baltimore, Md., Cedar Rapids, Ia., Chicago, Ill., Ceveland, O., Detroit, Mich., Flint, Mich., Hartford, Conn., Los Angeles, Cal., Memphis, Tenn., Milwaukee, Wis., Minneapolis, Minn., New York, N. Y., Oklahoma City, Okla., Omaha, Neb., and Council Bluffs, Ia., Pittsburgh, Pa., Portland, Ore., Rochester, N. Y., Springfield, Ill., Trenton, N. J., Washington, D. C., and St. Louis, Mo.

The Program

Tuesday, November 18

10 A. M.—Registration at Headquarters, Akron Armory

2 P. M.—Opening of Convention, Mr. George J. Burger, President National Tire Dealers' Association, presiding.
Prayer—Rev. Wilbur V. Mallalieu, Pastor, First Methodist Episcopal Church
Akron Greetings—Mayor D. C. Rybolt
Address of Welcome—Mr. O. B. Phillips, President Akron Tire Dealers' Association
Announcement of Entertainment, Mr. A. Roderick, Chairman Convention Committee
Response—Mr. George J. Burger
Address "Outlook in Automobile Industry," Mr. Alfred Reeves, General Manager National Automobile Chamber of Commerce, New York
Address "Business Conditions," Mr. Richard Lennihan, Assistant City Director, Bureau of Business Research, Harvard University
Address "The Value of Financial Control," Mr. H. A. Blankenship, Expert Accountant from Cincinnati

4 P. M.—Business Meeting
Reading of 1923 Convention Minutes
Appointment of Committees

7:30 P. M.—Ox Roast and Entertainment

Wednesday, November 19

9 A. M.—Address "Survey of Dealers' Rubber Stocks," Mr. P. L. Palmerton, Chief of Rubber Division, Department of Commerce, Washington, D. C.
Executive Business Meeting
Report of President
Report of Board of Directors
Financial Report
Report of Committees
General Discussion of Business and New Business

1 P. M.—Trips through the various rubber factories

7:30 P. M.—Banquet and Entertainment

Thursday, November 20

9 A. M.—Business Meeting
Unfinished Business
Nomination of Officers and Directors

2 P. M.—Business Meeting
Address "Sparks from the Anvil of Success," Dr. Eli J. Forsythe, Pastor Fort Street Congregational Church, Detroit
Election of Officers
Designation of 1925 Convention City
Closing of Business Meeting followed by Special Meeting of Newly Elected Officers and Directors

7:30 P. M.—Banquet and Entertainment
Address "The Rubber Industry," Mr. W. O .Rutherford, President Rubber Association of America, Inc.
Address "Prospects for Business in 1925," Mr. L. P. Ayres, Vice President, Cleveland Trust Company
Address by Mr. George J. Burger, President presiding
Address "Newly Elected President National Tire Dealers' Association

Miller Warehouse Destroyed

The Miller Rubber Co., Akron, Ohio, recently sustained a loss of about $16,000, according to the company's attorney, William Owsley, when one of the most serious fires that has broken out in recent years in Akron rubber factories destroyed a two-story frame warehouse at the corner of Getz and Stanton Avenues. Lumber and salvage composed the contents of the building destroyed. Firemen from six Akron companies concentrated their efforts on saving residences and larger buildings belonging to the Miller Rubber Co.

Paul Rubber Sold

The Paul Rubber Co., Salisbury, N. C., was sold recently by order of Federal Court. The plant and equipment were bid in for $140,000 and the personal property, trucks, etc. brought $33,000. The successful bidder represented a group which will organize a new company to operate the plant, if their bid is not bettered within ten days.

NEW GUINEA GROWING AS RUBBER PRODUCER

(Special to THE RUBBER AGE*)*

That New Guinea is steadily improving its position among the rubber producing countries of the world and may some day attain a foremost position in this direction, was testified to by Sir Westby B. Perceval, K.C.M.G., chairman of the British New Guinea Development Co., Ltd., in an address before the recent statutory meeting.

"The production of rubber for the seven months ended the Aug. 31 last on our plantations was 192,000 lb., as compared with 186,606 lb. for the twelve months ended Jan. 31—more rubber in little more than half the time," said Sir Westby. "These figures will be considerably increased when our two plantations come into full bearing. Special cultivation is being undertaken on the estates this year, and our manager anticipates that, with a much larger crop, costs will be reduced to ninepence (about 18 cents) per pound. We have three plantations under rubber, two of which are in production, and on the third, with a planted area of 276 acres, tapping is expected to commence during November, so that increased crops can be looked for in the future."

To Push U. S. Propaganda

(Special to THE RUBBER AGE*)*

As a result of the very encouraging success that attended the initial publicity campaign carried out by the R.G.A. with the object of stimulating the use of the crepe rubber sole in the United States, the association has decided to undertake renewed propaganda work in America. Judging by reports from various sources of increased shipments and sales to America, the preliminary campaign, which terminated some months ago, had far-reaching effects; but, despite the already large measure of success, it is felt that the United States, with its potential consumption of 8,000 tons in 1925, still presents enormous possibilites.

A striking commentary on the growing popularity of the crepe sole is the increased activity now being shown by the opposed interests. The R.G.A. are fully aware that, for the purpose of advertising the popularity of sole leather and preventing the encroachment of the composition soleing material and the crepe rubber sole upon the leather field, a propaganda scheme involving film displays, radio lectures, competitions, and extensive national advertising, is being carried out by the leather interests. This opposition renders the further development of the R.G.A.'s American campaign a matter of urgency if the goodwill for the plantation product already created is to be increased and turned to profit.

Rubber Cement Firm Formed

Rub-Ce-Co is the name of a new company which was recently incorporated to manufacture rubber cement in Boston, Mass. Authorized capital is $62,500. Incorporators are Aage Ewaldsen, Frank M. Stevens and Orlando C. Moyer.

HARVEY FIRESTONE BUYS SANFORD COTTON MILLS IN FALL RIVER, MASS.

Subsidiary Called Firestone Cotton Mills, Capitalized at $5,000,000, Has Been Formed to Operate Them—Factory Erected Four Years Ago at a Cost of $4,000,000

It was announced a few days ago that Harvey S. Firestone, president of the Firestone Tire & Rubber Co., Akron, Ohio, had purchased the Sanford Cotton Mills in Fall River, Mass. The mills will be operated by a subsidiary of the Firestone company which will be known as the Firestone Cotton Mills. This new company has already been incorporated in Massachusetts for $5,000,000. Bernard M. Robinson, secretary of the Firestone Tire & Rubber Co., is president of the new subsidiary.

Officials said that practically all the tire fabric used by the two factories in Akron as well as the fabric used in the Firestone-Apsley Rubber Co., Hudson, Mass., the rubber footwear subsidiary, will be produced in the Fall River textile plant.

The Sanford plants, which are in the center of the New England textile industry, are considered by textile men to be among the finest and best equipped in the country. The buildings were erected four years ago at a cost of approximately $4,000,000. Firestone engineers say that all are equipped with the best and most modern machinery.

Acquisition of these textile mills places the Firestone Tire & Rubber Co. on a close footing with outstanding American industrial incorporations such as the Ford Motor Co. and the United States Steel Corp., which to a large extent control the sources of supply of their raw materials.

The Firestone company also controls large rubber plantations in Singapore from which the company obtains most of its crude rubber.

SEES PHILIPPINES AS A FUTURE SOURCE OF CRUDE

According to G. H. Nasan, a representative of the Hood Rubber Co., Watertown, Mass., who recently visited the Philippine Islands and the Malay States in the interests of his company, American rubber executives are looking to the Philippines to furnish a reserve supply of rubber in the future.

"My company does not contemplate expenditures, for the present, at least, in development of Philippine rubber, but we are interested in the project," said Mr. Nasan. "There seems to be little doubt that rubber production can be carried out there on a large scale. It is only a matter of time when plantations will be established on a producing basis.

"I do not think the future rubber industry in the Philippines is going to be left in private hands. There seems to be a widespread opinion among rubber interests in the United States that the rubber industry in the Philippines will be government owned. The United States as a nation needs a reserve supply of rubber and there is a potential one here. All that remains is to develop it. When production is begun American consumers will purchase from the government. In this way the source of supply will not pass into private hands.

"The Philippines are capable of producing an excellent grade of the raw product and judging from the experimental work done there and the production now available, the Islands are destined to come before the eyes of the world as a great rubber producing center."

SIR GEORGE BEHARRELL HERE TO VISIT BUFFALO

Sir George Beharrell, managing director of the Dunlop Rubber Co., Ltd., Fort Dunlop, Birmingham, England, recently arrived in New York on the Mauretania. He will inspect the Dunlop plant at Buffalo.

Earnings this year of the British Dunlop company should exceed those of 1923 which totaled £1,250,000 after bond interest, sinking fund and depreciation, he declared. Dividends will probably be resumed if earnings continue at the present rate.

"The plants in England are operating at full capacity and the outlook is very bright. The capitalization program has been approved by the shareholders," he continued. "The only thing lacking is ratification by the courts."

Rubber Brokers Incorporate

The Plantation Trading Co., Inc., New York City, has been chartered with a capital of 100 shares of no par value to deal in crude rubber. Incorporators are Helen M. Hart, 21 Baldwin Ave., Jersey City, N. J.; Albert G. Thorne, 27 Cedar St., New York; and Charles A. True, also of 27 Cedar St., New York, are the directors and subscribers. Lester R. Bachner, 27 Cedar St., is attorney for the new firm.

Rubber Heel Patented

Patent No. 1,513,762 was recently granted by the United States Patent Office to Andrew J. Quist, Mount Jewett, Pa., for a rubber heel reinforcement. The heel has an outer surface that is convexed longitudinally and transversely. A flexible textile insert is completely housed within the heel and conforms to the convexity and concavity as well as to the peripheral outline of the heel. This insert, on which washers are mounted, is located midway between the outer and inner surfaces of the heel.

Armon Tire Formed

The Armon Tire & Rubber Co., Dayton, Ohio, was recently incorporated to manufacture tires. Authorized capital is $10,000. Incorporators are A. Wortman and J. B. Deady.

FINAL REPORT FILED BY BERGOUGNAN RECEIVERS

Charles E. Stokes and Gaston Tisne, receivers of the Bergougnan Rubber Corp., Trenton, N. J., recently filed their final report in Federal Court and obtained an order from Judge Runyon for creditors and stockholders to show cause why the report should not be approved. Mr. Tisne tendered his resignation as a receiver and it was accepted. The receivers will ask for a further allowance of $10,000 each.

Sales of products and material has netted $83,056, disbursements have been $213,480, cash and notes on hand aggregate $111,711 and materials and accounts receivable amount to $24,875, the receivers' report shows. Total claims against the company are $1,748,122, the largest claim being $1,216,436.05, which is said to be owed to the Societe Generale Des Establissements Bergougnan. This claim is being investigated by a Special Master appointed by the Court. A $1,000,000 mortgage on the plant comes due in 1937.

N. J. ZINC MANAGER HEADS ASSOCIATION

Edward Volney Peters, general sales manager of the New Jersey Zinc Sales Co., New York City, was elected president of the National Paint, Oil and Varnish Association at its 37th annual convention recently in Atlantic City.

Mr. Peters has taken a great interest in the affairs of the association for many years. He was elected eastern zone vice president of the association in 1923 and was chairman of the "Save the Surface" sub-committee for securing cooperation with financial institutions. He was one of the group of fifteen who founded the National Association of Purchasing agents.

Hurt in Rubber Cement Fire

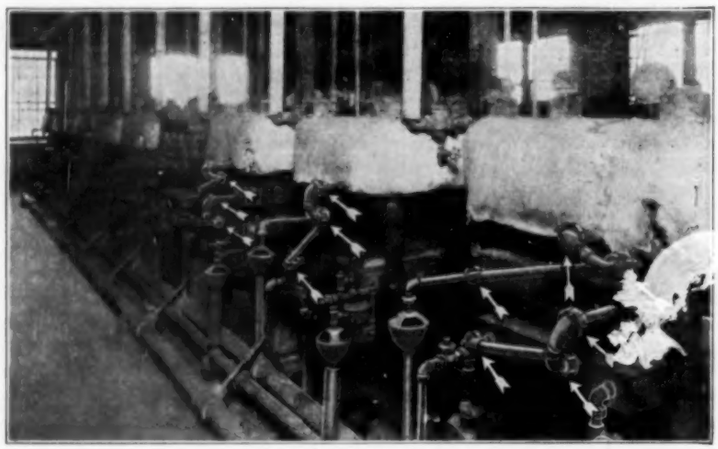
An explosion in a rubber cement factory which wrecked a one-story brick building at 1715 Grand St., Maspeth, Brooklyn, N. Y., may cost James Napolitan, aged 74, his life. Mr. Napolitan and his son, Anthony, operated the factory under the name of the Melvina Rubber Cement Co. The explosion is believed to have been started by a spark caused by friction in one of the cement mixers. Mr. Napolitan was burned badly about the face, body and legs before he could be rescued by firemen. Damage to the little factory is estimated at $7,000.

FACTORY EQUIPMENT

Flexo Pipe Joints

Flexo Kant Leak Pipe Joints, manufactured by the Flexo Supply Co., St. Louis, Mo., are made of steam brass and consist of only four simple parts. Inasmuch as they are not dependent on packing, springs or ground joints, for the pressure alone keeps them tight, they represent a radical departure in swing joint construction.

The patented design of Flexo joints insures a full port at any angle, which means an uninterrupted flow. They can be used on lines conveying steam, compressed air, hot or cold water, oil, etc. at high or low pressure. The joints are made in four styles and various sizes. In the photograph herewith, Flexo joints are shown on hydraulic vulcanizing presses of the Mechanical Rubber Co., Chicago, Ill. This is a representative installation as the connections are so made that natural drainage is obtained between plates, irrespective of whether they are raised or lowered.



Flexo Joints on Hydraulic Vulcanizing Presses in the Plant of the Mechanical Rubber Co., Chicago, Ill.

Inside Tire Patch Patented

Fred C. White, Mason City, Iowa, was recently granted U. S. Patent No. 1,513,204 on an inside tire cord patch comprising a plurality of sheets of impregnated cord fabric. These sheets, which are cut on the bias and of graduated sizes, are superimposed and joined, being molded into the shape of the interior surface of an arcuate section of a tire. The patch carries a gum coating on its convex surface.

I.R.I. to Publish Journal

(Special to THE RUBBER AGE*)*

W. F. V. Cox, secretary of the Institution of the Rubber Industry of London, in an interview recently with a British correspondent of THE RUBBER AGE, said he hoped to commence publishing the Institution's own journal shortly. The journal will contain verbatim copies of all the papers read at the various sessions of the Institution, besides other news of its doings and of interest to its members. The decision to publish it has been welcomed in London.

The Institution is very grateful for the cooperation of the London *India Rubber Journal*, which up to the present has published all the papers delivered under its auspices, but it has much other matter of news interest to which it wishes to call attention and thus it feels it cannot encroach upon the columns of an independent paper.

GENERAL TIRE ISSUES BROCHURE TO DEALERS

The General Tire & Rubber Co., Akron, Ohio, recently mailed to their distributors a handsome brochure, 14" x 11", printed on heavy coated paper of a buff tone. As a foreword the company states that the book is published as a tribute to General dealers and as an acknowledgment of the important part in the conduct of the company's business.

Under the heading, "Who Ever Heard of a Tire Factory Turning Down Business" the company gives its reasons for restrictions against new distributors last March, April and May. "Without taking new distributors, General's sales are 45% greater than the sales for the first six months last year," it is stated.

TRIPLE AIRLESS TIRE FACTORY TO BE SOLD

The factory of the Triple Airless Tire Co., Manorville, Pa., will be offered for sale about the first of December. The company was established in 1919 with a capitalization of $1,500,000. Appraised value of the factory, which is built of brick with steel sash, is $279,000. The power plant is equipped with three Heine boilers and a 500 h.p. generator.

Inasmuch as the factory is located conveniently a half-mile between Kittanning and Ford City along the state road and the Pennsylvania R. R., it would be an ideal factory, officials say, for a new company starting in the rubber industry. It has been intimated that it can be bought for about one-third of its appraised value. The Triple Airless company has its own railroad siding and there is plenty of water available for use in the plant.

The sale is the result of a foreclosure by the mortagees. The exact date of the sale has not as yet been announced.

Lee Reports Loss

The Lee Tire & Rubber Corp., Conshohocken, Pa., owner of the Republic Rubber Co., Youngstown, Ohio, recently reported a net loss for the third quarter of $22,022 after depreciation, against a loss of $39,347 in the second quarter and $112,217 in the first quarter. As of Sept. 30, profit and loss stood at $2,089,124.

BALLOONS PREDOMINATE AT LONDON AUTO SHOW

(Special to THE RUBBER AGE*)*

This year the London Automobile Show has made a bold bid to justify its claim to be the largest and most representative showing of cars, tires and accessories held anywhere in the world. In one direction, at any rate, its priority has never been disputed. It is more international than any other show. America, Britain, Italy, France, Germany, and Switzerland are all especially well represented. Tires are displayed from each of the first five of these countries, and in all the exhibits balloons predominate. "Balloons and saloons" is, in fact, the show's unofficial slogan this year, and pretty nearly every manufacturer has been careful to provide both for his cars. The balloon is, of course, the standard fitting for every make of car. Among other rubber articles pneumatic upholstery is prominent and is a feature of the coachwork of many models. With it a man may pump up the cushions in his car to suit his own weight.

Equipment for Sale

The Eagle Rubber Co., Ashland, Ohio, has a quantity of machinery in good condition which it wishes to dispose of, including a 150 h.p. electric motor, a 25 h.p. motor, a 3" Adamson tubing machine, an Ingersoll-Rand air compressor, several air tanks and a Gardner high pressure boiler.

The Development of the Rubber Pavement

First Cost, which has Always been a Bar to Its Adoption, Fades into Insignificance when Long Wear is Considered

By Edgar S. Dorr
Consulting Engineer, Boston, Mass.

WITHIN the last two years a lively interest has developed in the subject of rubber pavement. The basis for this interest is an economic one, and is to be found in the enormous accumulation of scrap rubber in the form of worn automobile shoes. This junk is practically worthless at the present time; if a new and extensive use for it could be found it would, of course, be a good business proposition. At first sight the proposition to pave streets with rubber appears absurd and lands itself to the art of the caricaturist.

However, when we learn that a rubber pavement has been in use in London since 1870, without any renewals until about a year ago, a period of 53 years; and that a rubber pavement was laid down 13 years ago for experiment under extremely heavy traffic on Front Street, Cuyahoga Falls, Ohio, and when taken up after 11 years was found to have worn down only ⅛ of an inch, the subject assumes a different aspect. Moreover, the continued and increasing activity in laying these pavements in London indicates a measure of satisfaction and shows that the subject is worthy of serious consideration.

It is receiving much consideration. In Racine, Wis., a practical block has been perfected and is coming into use quite extensively in Wisconsin and the middle west. (The writer will have more to say about it later.)

Two concerns in Boston have developed very creditable blocks, but have not as yet had a chance to submit them to practical test. Other firms in various parts of the country are actively experimenting, but not enough information in detail is known by the writer for a description at this date of writing.

First Cost Governing Factor

The governing factors in the problem are first cost and endurance, that is, length of life of the pavement. The real cost of any pavement is the yearly cost, or to be more explicit, it is the first cost plus maintenance, divided by the number of years that it lasts. The first cost of rubber pavement will be comparatively high, but if the endurance is correspondingly long, the cost per year will not be higher than that of other pavements with which it is properly comparable. The two kinds of pavement with which rubber is comparable are wood block and asphalt, because all smooth pavements show similar characteristics, but rubber possesses them in a superlative degree. It will probably cost, as nearly as can be estimated now, approximately three times as much but if it lasts three times as long, it will be no more expensive.

Meanwhile, the public will have enjoyed certain advantages which the rubber pavement offers in comparison to the others, to wit:—While all these are smooth pavements, wood and asphalt are slippery under conditions of moisture and frost, rubber is not; horses obtain a good foot-hold and rubber tires neither skid nor side slip. Wood and asphalt are less noisy than granite or concrete; rubber is entirely noiseless. Wood and asphalt transmit vibrations to the concrete base and to adjacent buildings; rubber suppresses vibration.

On the question of endurance, we have the Cuyahoga experiment in Ohio and the St. Pancras Hotel pavement of 1870, in London, to judge by. At Cuyahoga the rubber pavement showed ⅛ inch wear in 11 years; assuming ½ inch wear to be the limit, it would last 44 years. The St. Pancras pavement showed 3/16 inch surface wear in 53 years.

Tests Have Proven Durability

These are scarcely examples of long life in pavements, and indicate clearly that the life of rubber pavements may be expected to more than offset the higher first cost, and also that the interruption of traffic for renewals would be reduced to the minimum.

In the manufacture of rubber pavement both old stock and new rubber are used, and economy calls for as large a proportion of the old and as little of the new in the combustion as is practical in making a resilient, tough and enduring block. The old stock is ground, or preferably macerated in such a way as to preserve some length in the threads of cotton fiber which were originally fabricated into the tire. It is then mixed with new rubber, molded into the form of block or slab preferred, and vulcanized under a pressure of 2500 pounds per square inch and a temperature of 300° to 400° Fahrenheit. In one of the two kinds of blocks developed in this city it is as low as 15% to 20%, and the block is apparently sound and resilient enough. This is probably the low limit; the Racine block has 38% of new rubber.

Rubber pavement has been made in two styles, slabs and blocks. The early rubber pavements were in the form of slabs, long enough to reach from curb to curb, laid on a concrete base, and either attached to the base by iron bands at the curb, or fitted in tightly without mechanical attachment to the base.

When some of these were taken up recently for renewal, a curious phenomenon was revealed. They had worn more on the under surface than on the upper. The theory which fits the observed fact is that the rubber flows or stretches under the point of most intense pressure of the loaded wheel, and then resumes its form as the point of pressure moves on. This causes a slight rubbing between the slab and the base, and the concrete abrades the under surface of the slab faster than the traffic wears down the upper surface.

Blocks Have Replaced Slabs

Probably for this reason the slab form seems to have been abandoned, and all the later English forms are blocks. The idea has been to attach a rubber cap, about ½ inch thick, to a wooden or concrete block, so that the block could be laid like any other block pavement. These attempts have not been eminently successful. Many devices have been tried to attach the cap to the block, even steel plates with the rubber vulcanized on, and attached to the block by ears or flaps, have been used, but the plates cupped under the pounding of the traffic and became detached from the blocks. The most successful block of this kind consists of a ½ inch rubber top vulcanized on a block made of a low grade rubber compound, with just enough rubber in it to admit of vulcanizing. This was the kind of a block laid around the Cenotaph, in London, the block remained intact, but the job is a partial failure, having crept badly. The explanation given is that these blocks were laid upon a one inch bed of wet or moist mortar on a concrete base, and the traffic was admitted too soon, the mortar having taken an unusually long time to set. This is probably the correct explanation; mortar enclosed between a concrete base and an impervious rubber pavement would require an indefinite but long time to set, much longer than under ordinary conditions, because there would be no way for the excess water to escape except through the concrete base; it would be difficult to tell when it had set hard enough to resist the disturbing influence of the traffic. It would be particularly vexatious in the case of patches where openings have had to be made, it is very hard to keep traffic off long enough for cement to set under ordinary conditions in a crowded street.

While it is not obvious why a wet mortar bed was required for a block of this depth, (3 inches) with corrugated interlocking sides, the subject is worth discussion because it seems to be a

**Delivered before the 30th Annual Convention of the American Society, for Municipal Improvements held recently in Boston, Mass.*

favorite notion of American inventors in this field to devise a comparatively thin block with projections of some kind on the under side to be forced into plastic mortar in order to secure a bond with the base. They are economically right in designing a thin block, because there is no need of a thick block of such slow wearing material, and because, although it may be possible to prove that an expensive pavement is economical in the long run, it will take a long while to demonstrate it to the American public, and meanwhile high first cost will be a bar to the introduction of rubber pavement. But a thin block requires attachment to the base, and the writer cannot see the practicability of the plastic mortar bed. It would have to be, at the same time, plastic enough to admit the bonding attachment to be forced into it and stiff enough not to be thrown into waves under rolling or ramming.

It seems to the writer that a positive mechanical bond remains to be devised to attach the economical thin block to the concrete base.

It may be suggested that the English rubber proposition block of the Cenetaph type could be laid on a dry cement and sand cushion, as wood blocks are laid. Apparently it could, although it was not so done.

That may be the solution for city streets. But it is 3 inches thick instead of the 1 inch or 1½ inches of the American blocks, and rubber, the expensive ingredient has to be used throughout its whole volume. It is said to cost over £3 (about $16.) per square yard. Even if made here duty free its costs would probably prevent its use.

In the case of bridge paving the conditions are different, the blocks can be spiked to a wooden deck. One of the two types heretofore mentioned as being developed here is molded with conical holes to admit of spikes, which holes are to be closed with conical rubber plugs to be cemented in. It has not yet been tried out. The Racine block has been tried, two short patches were laid last May on the draw of the Northern Avenue Bridge to South Boston. Although the time is short the test so far has shown it to be absolutely satisfactory. The fine graining on the surface, the imprint of the mold, has not yet worn off under very heavy traffic of all kinds, horse-drawn, steel tires and rubber tires. It sustained a severe and unplanned test recently. This bridge carries a track of the Union Freight Railway. A freight car jumped the track and went across the pavement. The flange of the wheel cut grooves in the wooden planking of the bridge at both ends of the rubber section, but the paving was absolutely uninjured, not even a perceptible groove being left in it.

The Racine Block

This block is 12″ x 6″ x 1″ thick, with spiking flaps about ¼ inch thick, with or without additional cotton fabric, projecting at the bottom of the block, two from one side and one from the other. These flaps are received into and covered by recesses in adjoining blocks, so that the blocks break joint and shut closely. In addition to the spiking they are held to the wooden deck and to each other with a rubber and asphalt cement. At the present writing the surface is entirely unmarred by horse-shoe calks or anything else.

Although these sections are too short, (being only about 14 feet long) they afford as satisfactory a demonstration as they would if they were longer. But they do show enough to substantiate the claims of the advocates of rubber pavement, that it is noiseless, not slippery in wet weather and suppresses vibration. The latter propery is a valuable one for iron bridges.

Rubber pavement is peculiarly well adapted for draw spans because it is the only pavement known which possesses elasticity to accommodate the unavoidable bending of the draw span surface when the draw is opened and closed.

Enough has been learned from the sections on the Northern Avenue Bridge to lead the writer to assert without qualification that rubber pavement is the best ever invented for draw spans, and is more economical than a plank surface for bridges upon which the traffic is so heavy as to require, as at Northern Avenue, renewal two or three times a year.

This particular paving on the Northern Avenue Bridge was presented to the city by the manufacturer for experiment; his statement as to cost was that, when produced in quantity, it could be furnished for $12. to $13. per square yard.

The present status of the rubber pavement proposition is, as the writer sees it, that it is practical for plank surfaced bridges, and peculiarly desirable for draw spans, both for economy and suppression of vibration; that when a practical method of attaching thin, and therefore economical, rubber paving to a concrete base shall have been devised, we shall see rubber pavement upon city streets, first in those locations where noise and vibration of buildings is very objectionable, as in the vicinity of hospitals, churches, office buildings, and later wherever a particularly elegant pavement is desired.

Does Industrial Health Work Pay the Employer?

By Helena Lorenz Williams

To what extent is an employer responsible for the health of his employees? If he assumes responsibility for it, does the expense involved pay a sufficient return in financial profits? If it does not, is it good business? These are questions that confront the employer who looks with skepticism upon the rapid increase in industrial health work and so hesitates to establish it in his own shop or office.

To a certain extent most emp'oyers nowadays feel responsible for the health of their employees. That is, for the workers who operate dangerous machines or spend the day in an atmosphere laden with mineral or textile dust, safety devices that minimize the danger of preventable accident or illness are installed as a matter of course.

On the other hand, industrial health work as it is understood by business concerns that are conducting it in a much broader way, is expensive; and no firm is engaged in the production and sale of a product for humanitarian reasons only, be they ever so laudable. Which is as it should be.

Industrial health work is not merely a sentimental and unnecessary fad, it is an investment. Its success is a sound business success. In this respect, industries that have practiced it the longest are the greatest enthusiasts. While it is difficult to show that it pays large cash dividends. those that do accrue from it are of a more subtle but equally valuable nature. For example, the worker who receives free medical advice and attendance, and possibly nursing service, is loathe to leave his job. In fact, he may even prefer his old job to a new one at a higher wage, but with less security in times of illness. Dr. B. L. Wyatt, formerly Director of Public Service, Laurentide Company, Grand'mere, Quebec, states that other returns from health supervision which have no financial equivalent are, increased production (due to a more cooperative spirit and improved health standards); increased efficiency and decreased operating costs, (due to fewer occupational "misfits"): diminished unjust claims for compensation, (due to careful recording of the physical condition of applicants and employees); improved home and community conditions, (due to health education and other measures); improved relations between employer and employee, (due to the factors of community interest and mutual advantage).

Among the chief advantages of an industrial health service is the periodical physical examination. Investigations of one large life insurance company indicate that such examinations have a potential life saving value of $30.00 each. On the other hand, they are worth as much to the employer as they are to the the employee.

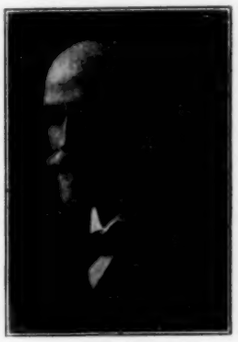
One of the insidious diseases that periodic medical examinations help to control is tuberculosis. The National Tuberculosis Association and its affiliated organizations have for a number of years been ardent supporters of the industrial health idea, as well as periodic physical examinations for both worker and employer. To carry on this work as well as other phases of the campaign, the seventeenth annual Christmas seal sale will be held throughout the country next month.

VULCANIZATION & ACCELERATORS

By Andre Dubosc

PART 1 (*CONTINUED*)

Theory of Vulcanization



Continuation of Andre Dubosc's Theory—The Four States of Equilibria that Sulphur Assumes in the Crystalline and Amorphous States—The Effect of Oxygen, Carried in Occluded Air, on Vulcanization

AT a temperature in the neighborhood of 95 degrees C the two crystalline varieties of sulphur, the monoclinic and the orthorhombic types, can exist together, when the pressure is atmospheric. In that condition sulphur is said to be anisotropic, that is to say, " all the properties of the metalloid can vary with the direction, whatever direction may be chosen." It will thus possess its own force of orientation. One and the same force will not cause it to elongate in the same degree of length, if the direction at which the force is applied to the sulphur is changed, and its resistance to elongation as well as to torsion varies according to the direction in which the force, causing elongation or torsion, is applied.

Thus again, the effect of heat on the sulphur will not be the same in all directions; in other words, the sulphur will not expand with an equal degree of facility in all directions. The same is true of the electrical conductivity, and the magnetic permeability, which will also vary in accordance with the direction of their application to the sulphur crystal. The substances which do not possess anisotropic properties, are amorphous. This class of substances is the one in which the state of the material is the same throughout the substance and where it is possible to pass in a continuous manner from the gaseous state to the liquid state and even to the vitreous state which is that of a superfused liquid.

Enjoying isotropy, the amorphous substances are in an unstable condition. Their conversion into the crystalline state is possible, but it is essential that the particles of the mass obey the force of orientation which tends to group them together into the form of crystals. The considerable viscosity of the medium in which they are found makes it necessary for a considerable time to elapse in order that the change takes place.

Sulphur in the Amorphous Condition

It has been said that sulphur has two forms in the crystalline state. It is also true that sulphur has two forms in the amorphous state. In one of these amorphous states the sulphur is soluble in carbon disulphide, and in the other it is insoluble in this solvent. The molecular formula of the sulphur that is soluble in carbon disulphide is S_8. At a temperature of 120 degrees C. monoclinic sulphur melts and is converted into a clear yellow liquid of mobile properties and exhibiting the phenomenon of superfusion.

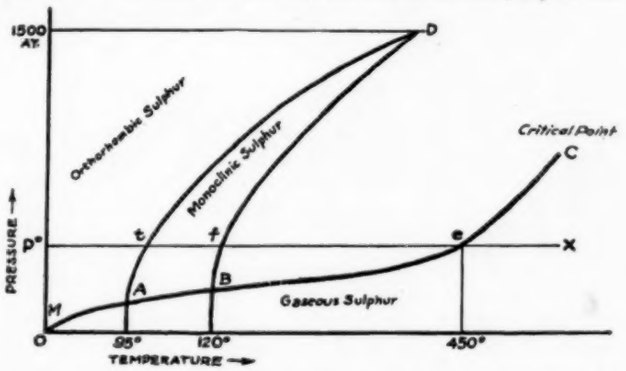
Moreover if this liquid sulphur is heated, the sulphur becomes viscous at a temperature in the neighborhood of 250 degrees C. A blackish red mass is formed possessing high viscosity, in fact so high, that it is possible to turn the container which holds the molten sulphur upside down, without it running out. The degree of polymerization is a function of the viscosity and hence it is probable that at that moment, the sulphur molecular has the formula S_8.

In the temperature interval, which is comprised between 120 and 250 degrees C, these two allotropic varieties of liquid sulphur can together at the same time in the same medium, the proportion of the first, constantly diminishing and disappearing as the temperature reaches 250 degrees C. Then if the heating is continued, the mass becomes more and more fluid, obeying the general law, according to which the internal friction of the liquids diminishes as the temperature increases.

Finally in the neighborhood of 450 degrees C the sulphur begins to boil, evolving a greenish red vapor and giving forth its characteristic odor. At this moment the vapor is constituted of molecules of S_8 sulphur; then as the temperature rises the molecular composition of the metalloid becomes simpler and the molecule assumes the form of S_2. In other words it becomes diatomic. Finally when the temperature attains very high limits, the molecule becomes mono-atomic and assumes the form of S.

Curve of States of Equilibrium

These various states of equilibria can be shown in diagrammatic form, as is seen in the accompanying diagram. Various curves are shown therein indicating the stable equilibria that exist for the various forms of solid, liquid and



gaseous sulphur. The temperatures are plotted as abscissae and the pressures as ordinates. The explanation of the figure is as follows:

The curve sheet is divided into four parts, which are as follows and which refer to the structural condition of the sulphur, namely, orthorhombic sulphur, monoclinic sulphur, liquid sulphur and gaseous sulphur:

The curve *MA* is the curve which shows the sublimation of orthorhombic sulphur. The curve *AB* indicates the sublimation of monoclinic sulphur, that of *BV* the vaporization of the sulphur which ends at a point above the critical point *C*. *Bf* is the fusion curve and *At* is the curve which shows the transformation that takes place from one crystalline variety of sulphur to the other, in other words from the orthorhombic to the monoclinic forms. The two curves which are drawn

to trace the course of this transformation meet at a point *D*, representing a temperature of 450 degrees C, under a pressure of 1500 atmospheres.

If from the point *P°*, which indicates a pressure equal to that of the atmosphere, there is drawn a horizontal line *P°X*, the points, *t*, *f* and *e*, where this line cuts the curves which have been discussed above, correspond to the temperatures 95, 120 and 450 degrees C.

From the standpoint of the phase rule as developed by Gibbs, the variance in all the curves is 2, with the exception of the curves that indicate the equilibria existing in systems that are univariant and with the exception of the triple points *A*, *B* and *D*, which correspond to invariant systems.

The transformation of orthorhombic sulphur into monoclinic sulphur is a reversible phenomenon, and is analagous from every standpoint to fusion. Over the entire length of the transformation curve *At* the system is univariant. An increase in pressure enhances the production of the denser variety of the sulphur. An increase in the temperature in other words enhances the formation of the more endothermic variety of sulphur.

In fine there are observed reciprocal encroachments of one of the varieties of sulphur into the domain of stability of the other. This varies in accordance with the rapidity at which the heating of the sulphur is conducted. Thus, when orthorhombic sulphur is heated to the fusion temperature, before it has had the time to be converted into the other crystalline variety of sulphur, a fusion temperature is observed other than that of the monoclinic sulphur.

The constants of the two crystalline varieties of sulphur are quite different. On the other hand their molecular weights are the same for they are both represented by the formula S_8, which is equal to 256. On the other hand the boiling temperature of the two crystalline varieties of sulphur is also the same, being 440 degrees C.

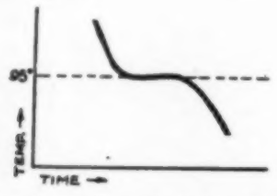
Properties of the Chrystalline Sulphurs

In the case of the orthorhombic sulphur the specific weight is 2.07 at zero degrees C and 76 centimeters pressure. Its fusion temperature is 115 degrees C and its transformation temperature is 97 degrees C. When the pressure is raised to fifteen atmospheres, the transformation temperature is lowered to 96 degrees C. Its density at this point is 1.8026.

On the other hand the specific weight of monoclinic sulphur is 1.97. The heat of formation in small calories is minus 640, the fusion temperature is 120 degrees C and the density is 1.957.

The determination of the point *t*, which is the transformation point under atmospheric pressure, can be accomplished in a number of different ways. This can be seen from the figure given above.

It is possible to determine the density of the sulphur between the temperatures of 90 and 100 degrees C. This factor undergoes an abrupt discontinuity at the point that transformation takes place. It is possible to cool off the sulphur very gradually after it has been brought to a temperature which is in excess of that temperature at which transformation takes place. Then it is possible to draw a curve showing the relation between temperature and time. When this is done a level stretch is obtained in the curve at the moment that the transformation takes place.



As far as sulphur is concerned, it is noted that the various allotropic forms of the element are stable within certain definite and well defined ranges of temperature, but sulphur possesses the power to change in a double manner and in this case there is a manifestation of enantiotropy.

From the standpoint of the varieties of sulphur which have just been described, Muthmann and Engel have isolated the following forms:

First there is the beta sulphur, monoclinic or monosymmetric, sulphur which possesses a fusion temperature of 113.5 degrees C. Then there is the triclinic sulphur described by Friedel. The monoclinic sulphur described by Engel and of which the density lies in the neighborhood of 2.135. Finally there is the blue sulphur of Orloff.

Colloidal Sulphur

The colloidal sulphur, which is described by Debas and which is known otherwise as delta sulphur, possesses much interest from the standpoint of the vulcanization of rubber. It is formed at the same time that Engel's monoclinic sulphur is formed and is produced by treating a saturated solution of sodium hyposulphite with twice its volume of hydrochloric acid having a density of 25 degrees Be. The mass is chilled till it attains a temperature of 15 degrees C. Engel's monoclinic sulphur is then separated by a process which depends on the insolubility of this form of sulphur in chloroform. Lobry de Bruyn obtained it, moreover by mixing together equimolecular solutions of sodium hyposulphite and hydrochloric in a twenty per cent gelatine solution. The solution remains clear for a period of fifteen minutes, and then sulphur gradually deposits. Lumiere substituted dextrin for gelatine as was used in the Bruyn process and obtained the same results. Finally Dubis obtained it by the action of sulphuretted hydrogen on sulphurous acid in accordance with the following equation:

$$2H_2S + SO_2 = 2H_2O + 3S$$

It is on this action that the author has based his theory of the vulcanization of rubber.

If a mixture of sulphur and rubber resins is heated in a sealed tube, giving it a rotary motion or not as the case may be, it has been noted by the author that at the temperature at which vulcanization of the rubber takes place there is an abundant formation of sulphuretted hydrogen. More of the same gas is formed when crude rubber, which has not been deresinified, is mixed with sulphur and heated under the same conditions. This fact was remarked a long time ago by Payen. He says as follows:

"As soon as the reaction begins to take place with the sulphur and during the entire time that it is taking place, which means between a temperature of 135 and 145 degrees C, a combination of sulphur with a small amount of hydrogen which is derived from the organic matter forms, and consequently it is found that there is a constant evolution of sulphuretted hydrogen."

On the other hand mixtures of sulphur and rubber always contain occluded air. This fact has been noted and corroborated by Sanderson in experiments that he made on the expansion of rubber during the course of the vulcanization process. Moreover it is rather easy to detect this air by taking a sample of the rubber sulphur mixture, before it is subjected to vulcanization, and after cutting it up into small pieces, immersing them in water and then submitting the entire system of rubber and water to the action of a vacuum pump. The fact that there was air occluded in the rubber sulphur mixture is readily attested to by the fact that a certain amount of air is disengaged from the mass under water as can be seen by the bubbles of the gas that ascend through the water, being drawn off by the vacuum pump. In fact this is so marked that the water appears to be boiling.

Hence if this triple mixture of air, rubber and sulphur is brought to a temperature at which vulcanization takes place, that is to say to the temperature of 135 degrees C to 145 degrees C, there is every evidence that the oxygen which is contained in the occluded air reacts with the sulphur and oxidizes it to give sulphur dioxide or sulphurous acid. Inasmuch as at that moment sulphuretted hydrogen is formed through the reaction that takes place between the sulphur and the crude rubber and the resins which the latter contains, the two gases that are formed in this manner react with each other at once to form water and colloidal sulphur in accordance with the following equation:

$$SO_2 + 2H_2S = 2H_2O + 3S$$

Rubber is a colloid and hence it will absorb very rapidly that sulphur that is formed in this manner and in accordance with the laws of colloidal chemistry it is free to form a definite compound, such as polyprene sulphide, through a pure chemical reaction.

In the next issue the various theories of vulcanization will be discussed.—The Editor.

Dust Explosions in the Rubber Industry

By **Fred S. Hoxie**

Engineer, Associated Factory Mutuals Fire Insurance Companies, Boston, Mass.

EXPLOSIONS in fine organic dust are a serious menace to life and property and cannot be effectively protected against by automatic sprinklers or other fire extinguishing methods in common use.

Hard rubber has been ground with roller mills for 20 years or more without frequent or serious explosions. Within the past three or four years ball mills have been introduced and, where air is used for taking the dust from these mills, explosions are frequent. The reason is shown at once by the microscope.

The roller mill grinds practically all the dust coarser than one one-thousandths of an inch in diameter while, with the ball mill a considerable portion is in the order of magnitude of a ten-thousandth of an inch in diameter.

Organic material of an order of magnitude of one ten-thousandth of an inch in diameter, is highly explosive.

The remedy is to use an inert gas instead of air for handling this fine dust. Flue gas has been found to serve this purpose very well. A small amount of sulphuric acid may be condensed from this gas so that thin metal pipes are attached in time. It is probable that the acid as well as water can, in part at least, be removed by filtering through loosely packed steel turnings. The small amount of soot contained does no harm with black rubber. Carbondioxide recorders have been used to show the percentage of oxygen burned out of the air. No explosion has been noted with seven per cent carbondioxide.

Colloidal and porous articles which have large surface area compared with their volumes may have gases and vapors attached to them in a thin film. Therefore, as the particle becomes very small, such a surface film of attached, or as it is called "absorbed," gas may form an appreciable proportion of the weight of the particle.

Such fine particles stick together in clumps. The absorbed gas or moisture film is probably a factor in this clumping. Moreover, when the particles are very fine the absorbed gas may be in sufficient quantity to influence the violence of the explosion, an inert gas like nitrogen or carbon dioxide reducing the explosion pressure and oxygen increasing it.

The fineness of particles are an important factor in dust explosions. So long as the dust remains in clumps, it behaves like coarser particles, but if a sufficient change in temperature or humidity, or an electric charge causes the clumps to break up a highly explosive atmosphere is formed.

At unusually high magnifications, it may be seen that these clumps are composed of dust of about one ten-thousandth of an inch in diameter attached to larger particles. Hard rubber ground by a ball mill or other fine dust, as it becomes finer, at length reaches a maximum of effective fineness when it is in the neighborhood of five ten-thousandths of an inch in diameter, most of the dust finer than one ten-thousandth of an inch forming clumps of a diameter of about five ten-thousandths of an inch with a coarser particle as a nucleus.

In many of the more violent explosions in grain elevators and other dusty rooms there have been two or three distinct explosions—the first one of insignificant violence, possibly from a slight fire or a hot bearing in a location containing much clumped dust which the heat was able to break up and distribute, the fine dust thus instantaneously distributed in the air and ignited by the fire causing violent explosion.

Read before the Rubber Section of the National Safety Council at its meeting in Louisville, Oct. 2, 1924.

CLASSIFIED ADVERTISING

10 Cents a word, minimum charge $2.00, payable in advance. Address replies to box numbers, care THE RUBBER AGE, 225 Fourth Ave., New York.

FOR SALE: Ingersoll Rand Imperial Type 10, Steam Driven Pump, air tank, water cooling and pressure oiling system complete, also; 4-mills 16″ x 36″ complete with double reduction gear and 75 hp. motors; 1-Thropp Cracker 15″ x 24″; 1-36″ band saw. Box No. 396, THE RUBBER AGE.

Whether You Want—

To Sell Old Equipment
To Obtain New Help
To Get Additional Capital
To Buy a Plant or
To Secure More Machinery

You want to reach the rubber industry *without delay*. Moral—Use the Classified Columns of THE RUBBER AGE

Mailing Lists

Will help you increase sales
Send for FREE catalog giving counts and prices on thousands of classified names of your best prospective customers—National, State and Local—Individuals, Professions, Business Concerns.
99% Guaranteed by refund of 5¢ each

Tougher—

yet more resilient and elastic

This may seem like a paradox when applied to rubber compounds, but

MICRONEX

will do it!

This colloidal reinforcing pigment—a carbon made from natural gas—is used by over 150 tire manufacturers, with great success.

The wise and progressive maker of mechanical rubber goods, sundries, etc. would do well to emulate the tire man, and demonstrate how MICRONEX will improve his products.

Write for samples and particulars, which will be gladly furnished by

BINNEY & SMITH CO.

41 East 42nd. Street, *at Madison Ave.*

New York City

EDITOR'S REVIEW DESK

Books **Trade Catalogs** **Articles**

VULCANIZATION ACCELERATORS. Bulletin No. 2. 11 pp. 3¾″ x 6¾″. E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

This little booklet deals with the preparation, physical and chemical properties, compounding characteristics and effects of Vulcone, a synthetic resin, an accelerator which melts on the rolls and fluxes with the rubber. Vulcone is a hard resin which completely dissolves in the rubber and is consequently molecularly dispersed. It is prepared by the condensation of alipatic aldehydes with aniline followed by a polymerization under rigidly controlled conditions.

It has a specific gravity of 1.15, has a slight smell suggestive of carbylamine, does not absorb moisture and does not decompose upon long exposure to air or under the action of sunlight. It does not give off obnoxious fumes while being mixed or calendered and is not poisonous, i. e., it will not cause dermatitis or cyanosis but, if taken internally or introduced into the blood through open wounds might be toxic.

The manufacturers claim that one part of Vulcone will ordinarily replace at least one and one-half parts of diphenylguanidine without changing the rate of cure. On this basis the compounding costs, calculated on their normal value, would show a saving of more than 40%. Stocks containing Vulcone are not as stiff at low elongations as those cured with the guanidines and have slightly lower tensile strengths but greater elongations at their optimum cures.

* * *

VULCANIZATION ACCELERATORS—Bulletin No. 3—A One Man Device for Obtaining Stress-Strain Data. 3¾″ x 6¾″—Issued by E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

The methods heretofore in use of judging the quality and state of cure of rubber compounds have not shown altogether satisfactory results. For this reason stress-strain data, together with recovery and energy loss data, are now generally acknowledged the best standards for determining the suitability of a rubber compound for any special purpose.

Several means for obtaining stress-strain data are in use. The testing machine, because of the expense of its operation, and the automatic recorder, because of certain inaccuracies, have not given the desired results. To overcome these faults an improved stress recorder, known as the Scott Rubber Tester, has been designed and in this booklet the publishers give a full description of the device, accompanying same with figures showing front view of dial, side view of dial and the chart used.

* * *

WHY WE HAVE NO BREAKS WITH LABOR. By D. G. Snodgrass, general works manager, Dunlop Rubber Co., Ltd. Published in the November issue of *System*.

Coming to the conclusion that labor disputes were largely caused by the failure of the company to keep in touch with employees over long periods, the Dunlop company found that the works committee offered the best solution to the problem. Quarterly meetings of a "joint factory council" are held quarterly at which both employees and management are represented. The joint factory council appoints from its members a works committee of from 10 to 12 representatives, which meets monthly to consider factory matters such as hours, regularity of employment, output, improvement in methods, discipline, grievances and disputes.

Work committee meetings are always held during working hours and the representatives lose nothing by attendance. Meetings of the factory council are held in the evening but delegates are paid for the time spent. No person in control of labor is allowed to be a member of the works committees, although he may sit on the joint factory council. Thus the workers know that they will get impartial judgment.

* * *

THE COST OF OVERHEAD. Business Leaflet No. 9. 3½″ x 6″. 12 pp. Issued by the Policyholders' Service Bureau, Metropolitan Life Insurance Co., New York, N. Y.

The problem of overhead is always interesting, especially when the facts are presented in a timely and easily-assimilated manner. Arthur Lazarus, the author of this leaflet, has set forth the advantages gained by making each department of an organization self-sustaining, the disadvantages of accepting orders on incomplete costs, the effects of excess capacity on overhead, and the importance of using normal production in determining burden. He tells how to measure overhead and discusses the advantages of overhead ratios.

* * *

THE SIGNIFICANCE OF THE BUDGETS—Business Leaflet No. 10—3½″ x 6″—Issued by the Policyholders' Service Bureau, Metropolitan Life Insurance Co.

The need of foresight in the conduct of a business is of first importance and the place of the budget in the general plan is its element of security. Its effect upon sales, production, employment and the objective of all business, profits, is obvious and it is these points which the publishers of this booklet enlarge upon and explain.

The budget as a negative factor, as a positive control, in government administration and in the prompt fixing of responsibility are some of the topics which are discussed in a manner which should prove of interest to rubber manufacturers.

* * *

COMMERCIAL RUBBER AND ITS PREPARATION. Published in the September issue of *The Travelers Standard*, published by the Travelers Insurance Co., Hartford, Conn.

About twenty genera of plants capable of yielding latex are known at the present time. About 1,500,000 acres of rubber trees are now under cultivation. If the coagulum has been washed and dried before shipping, it is sometimes considered unnecessary to treat it further before the mixing operation but if it is still in the form of blocks or biscuits, it must be washed to remove impurities. After being soaked in warm water for from three to six hours, the rubber is cut into pieces and placed in a washing machine, which consists of heavy corrugated rolls that break up the masses. Streams of water continually play over the mass to carry away the sand, bark and other impurities as they are brought to the surface by the action of the rolls.

In the process of washing, care should be taken to see that water is drained from the floors and that they are kept as dry as possible to avoid accidents. Adequate illumination should be provided and it is well to paint walls and ceilings a light color to assist in distributing the light by reflection. Main driving wheels, pinions and gears driving the heavy rolls of the washing machines should be effectively protected. All washing machines should be provided with a device to stop the rolls almost instantly in case of accident. This device should be arranged so that it may be operated from any part of the machine.

When drying is done by means of the kiln-drying process in lofts, the ventilating fans should be guarded by strong

(Continued on Page 130)

MARKETS

Cottons and Fabrics

NEW YORK, Nov. 15, 1924

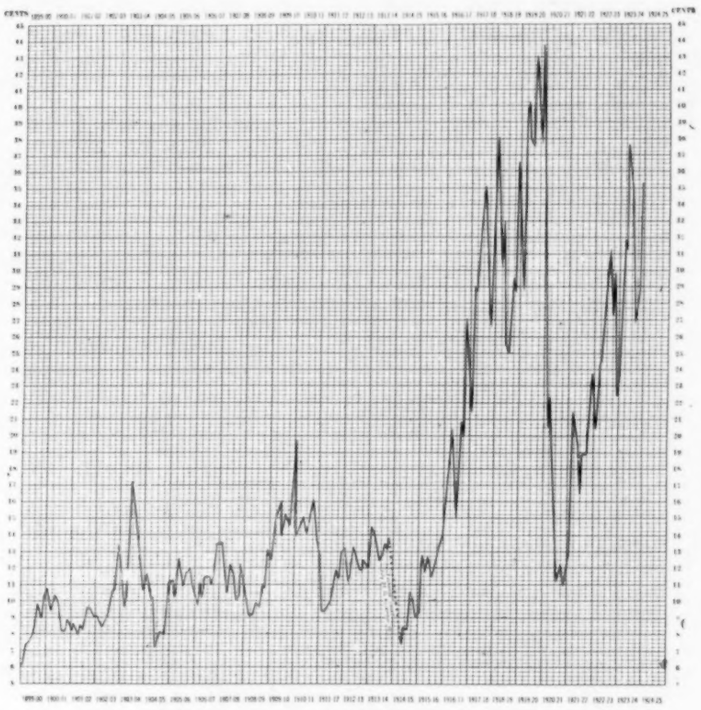
Two weeks ago previous to the issuance of the crop report on the 8th, trading was at a low ebb, partly because of the usual hesitation that always precedes a national election and partly due to uncertainty regarding the crop estimate. The fluctuation of prices, therefore, was confined to a narrow margin from day to day, with a net change for the week ended November 8 that may be considered negligible.

The mill takings for this week again indicated that spinners were broadening their activities. Although the movement of the crop to market continues heavy, the total for the week did not reach by a fair margin the total for the preceding week, indicating, said many, that the peak of the movement has already been passed.

On the 8th the Department of Agriculture forecast a total production of 12,816,000 bales and the Census Bureau reported that 9,694,920 bales, or more than three-quarters of the crop, had been ginned prior to Nov. 1. Condition of the crop on Nov. 1 was 55.9, compared with a condition of 54.7 on Oct. 18.

There is a growing tendency to devote more attention to figuring the consumption for the season than the probable supply. One cotton house estimated recently that the world would take 12,800,000 bales of American cotton this season. Some believe that consumption will reach fully 13,000,000 bales. Either of these amounts, if realized, would leave no carry-over sufficiently large to worry about.

Under a large volume of business on the 10th and 11th prices were carried above the 25-cent level for both March and May. Little net change resulted from the fluctuations the following day.



Copyright 1924, A. Norden & Co.

Range of Cotton Prices in 25 Years

The market resumed its upward trend, however, on the 13th when May sold around 25½ cents and December nearly at 24¾ cents. Reports from New England indicated that many large factories were resuming full time in all departments. As a direct result of lower production costs, made possible by reduced wages and raw materials, goods have been selling more freely.

On the 15th trade demand was a buffer against scattered week-end selling and Liverpool and hedge sales, causing cotton to close a trifle higher. Indications are that spinners will have to enter the mar-

(Continued on next page)

J. H. LANE & CO.

Tire Fabrics Cord Fabrics

Enameling Duck Drill Sheeting

Osnaburg and Special Constructions

250 W. 57 STREET, NEW YORK 226 WEST ADAMS ST., CHICAGO

Cotton Markets

(Continued from Page 123)

ket for extensive supplies of raw cotton to keep their mills running at the present rate.

New York Cotton Prices

	Open	High	Low	Last Sale	Close Nov. 3
December	24.56	24.66	24.47	24.58	25.05
January	24.75	24.85	24.67	24.80	23.18
March	25.05	25.16	24.97	25.10	23.40
May	25.35	25.47	25.29	25.40	22.82
July	25.08	25.22	25.01	25.20	23.36

TIRE FABRICS

During the past two weeks good inquiries were reported in this market. Tire factories were interested in January-June deliveries. The belief was prevalent that the trend in the smaller-sized tires is toward the cord styles. For this reason some persons thought that an effort was being made to eliminate stocks of other constructions. The square woven tire will continue to have a market, however, it was said.

Sales were put through at as high as 55 cents for carded peeler cord. Some irregularity in quotations was apparent, with a few mills reported to be ready to sell as low as 51 cents the standard 23s 5-3 constructions. In many quarters the square woven cloths were priced at the same levels as cords and as much as 2 cents lower in others.

A few mills are well supplied with business to keep them running fairly full during the first quarter of 1925. Spot goods were said to be scarce, in fact, it was reported that the market was not well provided with stocks of any description.

During the last few days the inquiries aggregated over a million pounds of fabric, most of which were placed for delivery to run from January through to June. The price basis continued irregular but most of the recent business was placed at around 55 cents a pound.

CORD FABRICS				
Combed Sakellarides		Nominal		
Combed Peeler	lb.	Nominal		
Carded Peeler	lb.	.51	@	.55
Combed Egyptian uppers	lb.	.66	@	.72
Carded Egyptian uppers	lb.	.61	@	.66
SQUARE WOVEN				
17¼-ounce Egyptian uppers, combed	lb.	Nominal		
17¼-ounce Egyptian uppers, carded	lb.	.59	@	.64
17¼-ounce Sakellarides, combed	lb.	Nominal		
17¼-ounce Peeler, carded	lb.	.49	@	.53

DEFEND FORTNIGHTLY COTTON REPORTS

Protests against the fortnightly cotton crop reports have been so numerous that the Department of Agriculture has issued a formal defense. Among the critics are the Dallas and New Orleans Exchanges and the president of the American Cotton Association. The Department of Agriculture holds that the reports are necessary guides to both buyers and sellers, and that the market fluctuations are not due to the frequency of issue. The reports were increased in number after a hearing of the trade at a conference summoned by the late Secretary of Agriculture. Complaints of errors in the reports are also being received by the Department of Agriculture.

Ducks—Prices, although subject to little change in the past two weeks, have been very firm and close to the actual quotable basis. Buyers who sought special values discovered that concessions were very scarce. The mills were sold up in many grades and did not appear eager to attract business by sacrificing prices.

Burlaps—A moderate amount of business was done during the past fortnight with November and early December arrivals preferred by buyers. A little trading was done at concessions under the full asking basis, but anyone in close touch with the market held out for full prices. The rise in sterling exchange on the 10th was a great incentive to advancing prices and the lower sterling exchange again influenced the market on the 12th, resulting in restricted trading because it affected the currency price of shipments. There was no evidence that prices would weaken this year.

SHEETINGS				
40-inch 2.50-yard	yd.	.16¼	@	—
40-inch 2.85-yard	yd.	.14¼	@	—
40-inch 3.15-yard	yd.	.14¼	@	—
40-inch 3.60-yard	yd.	.12	@	—
40-inch 3.75-yard	yd.	.11	@	—
40-inch 4.25-yard	yd.	.09⅞	@	.10
DUCKS				
Belting	lb.	.41	@	.43
Hose	lb.	.41	@	.43
Enameling	lb.	.45	@	.50
Shoe Ducks	lb.	.47	@	.50
Single filling	lb.	.18	@	.22¼
Double filling	lb.	.22	@	.23½

BURLAPS (Carload Lots)				
7½-ounce 40-inch		8.80	@	9.30
8 -ounce 40-inch		8.90	@	9.40
10 -ounce 40inch		10.20	@	—
10½-ounce 40-inch		10.75	@	10.85
DRILLS				
37-inch 2.75-yard	yd.	.14¼	@	.14½
37-inch 3.00-yard	yd.	.13½	@	—
37-inch 3.25-yard	yd.	.12½	@	—
37-inch 3.50-yard	yd.	.11¾	@	—
37-inch 3.95-yard	yd.	.11	@	—
OSNABURGS				
30-inch 7-ounce		.13¾	@	.14
40-inch 7-ounce		.15½	@	—

Reclaimed Rubber

NEW YORK, Nov. 15, 1924

Reclaimers still are very busy with a number of grades reported oversold. Manufacturer demand is holding up very well, a condition which is expected to continue for some time. In some quarters increased prices are expected, a tendency recently manifested in floating tube and friction which have advanced fractionally. Quotations are as follows:

Floating Tube	.15¼	@	.15½
Friction, uncured	.27	@	.29
Boots and Shoes (unwashed)	.09¼	@	.09½
Boots and Shoes (washed)	.12¾	@	.13
Mechanical	.09	@	.09½
Hose	.09½	@	.10
Tires, truck	.08	@	.08½
Tires, auto, black	.09	@	.09¼
Black (washed)	.10	@	.10¼
White	.13½	@	.13¾
Dark Gray	.09¾	@	.10
Light Gray	.10½	@	.10¾

Scrap Rubber

NEW YORK, Nov. 17, 1924

The scrap rubber market continues firm, with few grades showing any change in quotations. Dealers report a pronounced improvement in demand, which, however, has not resulted in raising prices, as has been anticipated. No market exists east of Akron for ordinary mixed tires.

Quotations are as follows:

Auto tire peelings	.01¼	@	.01½
Standard White auto ton	22.00	@	25.00
Mixed auto ton	16.00	@	18.00
Bicycle tires ton	9.00	@	10.00
Clean solid truck tires	.01¼	@	.01½
Boots and shoes	.02½	@	.02⅝
Arctics, untrimmed	.01½	@	.01½
Arctics, trimmed	.01½	@	.01¾
Inner tubes, No. 1	.04½	@	.05
Inner tubes, compounded	.02¾	@	.03
Inner tubes, red	.02¾	@	.03
Battery jars, clean hard rubber	.01	@	.01½
Air Brake Hose ton	15.00	@	16.00
Rubber Hose ton	11.00	@	12.00

TIRE FABRICS

OF EVERY DESCRIPTION

TAYLOR, ARMITAGE & EAGLES Inc.

Equitable Building, 120 Broadway, New York

SEA ISLANDS EGYPTIANS PEELERS

FABRICS TO SPECIFICATION

AMERICAN COTTON FABRIC CORPORATION

CHEMICALS & COMPOUNDING INGREDIENTS

Accelerators — Colors — M.R. — Compounding Ingredients Softeners — Vulcanizing Ingredients — Rubber Substitutes

NEW YORK, November 17, 1924—Consumption of chemicals and compounding ingredients used in the rubber industry continues to be very good. All dealers and chemical manufacturers reported excellent business that is expected to show no falling off during the remainder of the year and may even continue into the spring. Prices of some chemicals are stiffening in the face of the increased demand.

ACCELERATORS

Organic

Aldehyde ammonia, crystals	lb.	$ .95 @	1.00
Aniline oil, drums	lb.	.17 @	.17½
Diphenylguanidine	lb.	1.10 @	1.20
Excellerex,	lb.	.40 @	.45
Formaldehyde-Aniline	lb.	.42½ @	—
Hexamethylene-tetramine	lb.	.85 @	—
Paraphenylenediamine	lb.	1.40 @	1.50
Super-Sulphur No. 1	lb.	.50 @	.60
Super-Sulphur No. 2	lb.	.25 @	.35
Tetramethyl— Thiuramdisulphide	lb.	6.00 @	—
Thiocarbanilide, kegs	lb.	.26 @	.32

Inorganic

Lead, sublimed blue	lb.	.09½ @	—
Lead, white	lb.	.10½ @	—
Litharge, domestic	lb.	.11½ @	—
Lime, superfine	lb.	.01½ @	.02
Magnesia, calcined, light,	lb.	.24 @	.25
extra light	lb.	.45 @	.60
heavy	lb.	.04 @	.05

COLORS

Blacks

Arrow "Aerfloted"	lb.	.06¼ @	.10¼
Bone Black	lb.	.08 @	.11
Carbon "	lb.	.06 @	.11
Drop "	lb.	.07½ @	.10
Ivory "	lb.	.15 @	.45
Lamp "	lb.	.12 @	.40
Micronex	lb.	.07 @	.12
Thermatomic carbon	lb.	.04 @	.08

Blues

Cobalt	lb.	.21 @	.26
Prussian	lb.	.36 @	.38
Ultramarine	lb.	.08 @	.35

Browns

Iron oxide	lb.	.03½ @	.14
Sienna, Italian,	lb.	.04½ @	.14
Umber, Turkey	lb.	.04 @	.06
Vandyke, domestic	lb.	.03½ @	.04

Greens

Chrome, light	lb.	.29½ @	.31
medium	lb.	.32 @	.35
dark	lb.	.35 @	.38
Commercial	lb.	.10 @	.10½

Reds

Antimony crimson, 15/17 F.S.	lb.	.35 @	.39
sulphur free	lb.	.45 @	.60
golden, 15/17 F.S.	lb.	.16 @	.19
calcium and sulphur free	lb.	.40 @	—
red sulph.15-17 F.S.	lb.	.16 @	.20
Indian, English	lb.	.08 @	.10
Para toner	lb.	.95 @	1.00
commercial	lb.	.15 @	.18
Red oxide, reduced	lb.	.08 @	.10
pure	lb.	.13 @	.14
Toluidine toner	lb.	1.85 @	2.10
Venetian red	lb.	.01½ @	.05
Vermillion, quicksilver, English	lb.	1.25 @	1.30
domestic	lb.	.15 @	.25

Whites

Albalith	lb.	.06⅞ @	.06⅝
Aluminum bronze		.55 @	1.25
Lithopone Azolith	lb.	.06½ @	—
Zinc Oxide—American Process XX red	lb.	.07¾ @	.08¼
Kadox, black label, bags, cars		.11⅝ @	.11⅞
blue " " "		.10⅝ @	.10⅞
red " " "		.09⅝ @	.09⅞
American Azo: ZZZ (lead free)	lb.	.07¾ @	.08¼
ZZ (under 5 per cent leaded)	lb.	.07 @	.07½
Z (8-10 per cent leaded)	lb.	.06¾ @	.07¼
Zinc Oxide—French Process White seal	lb.	.12 @	—
Green seal	lb.	.10¾ @	—
Red seal	lb.	.09½ @	—

Yellows

Chrome, light		.17 @	.18
dark and medium	lb.	.17 @	.18
Cadmium Sulphide	lb.	2.00 @	2.50
Ocher, French medium	lb.	.03 @	.03½
domestic	lb.	.01½ @	.02½

COMPOUNDING INGREDIENTS

Aluminum Flake	ton	21.85 @	24.50
hydrate light	lb.	.17 @	.18
Ammonia carbonate	lb.	.13 @	.14½
Asbestine	ton	15.00 @	18.00
Barium carbonate	ton	63.00 @	65.00
Barium Dust	lb.	.05 @	.06
Barytes southern off-color,	ton	15.00 @	18.00
Western prime white	ton	22.00 @	23.00
imported	ton	28.00 @	38.00
Basofor	lb.	.04¼ @	—
Blanc fixe, dry f.o.b. works	lb.	.03½ @	.03¾
Carrara filler	lb.	.01¾ @	—
Chalk, precipitated, extra light	lb.	.03¾ @	.04½
heavy	lb.	.03¼ @	.04
Clay, China, domestic,	ton	14.50 @	22.50
Dixie	ton	20.00 @	35.00
Blue Ridge	ton	12.00 @	25.00
Langford	ton	12.00 @	26.00
Fossil flour	lb.	.03 @	.05
Glues, extra white	lb.	.21 @	.29
medium white	lb.	.19 @	.25
cabinet	lb.	.17 @	.25
cabinet low grade	lb.	.14 @	.18
common bone	lb.	.09 @	.12
Graphite flake, bbls.	lb.	.06½ @	.12
Lump	lb.	.04 @	.10
Infusorial earth, powdered	ton	60.00 @	—
bolted	ton	65.00 @	—
Liquid latex	gal.	1.25 @	1.35
Magnesia, carbonate	lb.	.07¼ @	.07¼
Mica, powdered	lb.	.07 @	.15
Rotten Stone (powdered)	lb.	.02½ @	.04½
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	3.97 @	4.07
Talc, domestic	ton	15.00 @	22.00
French	ton	18.00 @	22.00
French, high grade	ton	38.00 @	45.00
Italian	ton	45.00 @	55.00
Terra Alba	cwt.	1.25 @	2.00
Tripoli, white	lb.	.02 @	.02½
Whiting, commercial	cwt.	.85 @	1.15
gilder's bolted	cwt.	1.10 @	1.20
English cliffstone	cwt.	1.50 @	—
Paris whiteAmerican	cwt.	1.25 @	1.50
Quaker	ton	13.00 @	15.00
Sussex	ton	8.00 @	16.00
Wood pulp XXX	ton	35.00 @	—
" " X	ton	25.00 @	—

MINERAL RUBBER

Genasco (factory)	ton	50.00 @	52.00
Granulated M.R.	ton	40.00 @	54.00
Hard hydrocarbon	ton	31.00 @	50.00
Soft hydrocarbon	ton	30.00 @	40.00
320/340 M. P. hydrocarbon (c. l. factory)	ton	45.00 @	50.00
300/310 M. P. hydrocarbon (c.l. factory)	ton	40.00 @	45.00
Synpro, granulated, M. R. (factory)	ton	55.00 @	70.00

SOFTENERS

Acids

Acetic, 28%	cwt.	3.12 @	3.37
Cresylic, 97%	gal.	.63 @	.68
95%		.61 @	.66
Muriatic, 20%	cwt.	.80 @	.90
Nitric, 36 degrees	cwt.	4.25 @	4.50
Sulphuric, 60 degrees	ton	9.00 @	10.00
66 degrees	ton	14.00 @	15.00
Tartaric, crystals	lb.	.29 @	—

Alkalies

Caustic soda, 76%	cwt.	3.20 @	—
Soda ash, 58% C.L.	cwt.	1.43 @	1.45½

Oils

Castor, No. 3, bbls.	lb.	.16½ @	—
Chinawood, bbls.	lb.	.16 @	—
Corn, crude, bbls.	lb.	.12½ @	.12¾
refined	lb.	.13¼ @	—
Cottonseed, crude		.09 @	—
Glycerine C.P. Drums	lb.	.19 @	.19½
Linseed, Raw C.L.	gal.	1.05 @	—
Palm, Niger	lb.	.09 @	—
Lagos	lb.	.10 @	—
Peanut,domestic,crude	lb.	.13 @	—
Petrolatum, white		.12¾ @	.13
amber		.03⅞ @	.04¼
dark amber	lb.	.03⅝ @	.03¾
Pine, steam distilled	lb.	.65 @	.70
Rapeseed, refined	gal.	.98 @	1.00
blown	gal.	1.05 @	1.08
Rosin, first rectified	gal.	.45 @	.46
second rectified	gal.	.47 @	.48
Soya Bean, crude		.13 @	.13¼
Tar, commercial	gal.	.30 @	.32

Resins and Pitches

Cumar resin, hard	lb.	.09 @	.10
soft	lb.	.09 @	.10
Parra M.R.	lb.	.06 @	.07
Tar Retort	bbl.	12.00 @	—
kiln burned	bbl.	12.00 @	—
Pitch, Burgundy	lb.	.65 @	.66
coal tar	gal.	.05½ @	.06
pine	bbl.	5.50 @	6.00
Rosin, grade K	bbl.	7.50 @	—
Shellac, Superfine orange	lb.	.68 @	.69

Solvents

Acetone, drums C.L.	lb.	.17½ @	.18
Alcohol, denatured, No. 1 bbls.	gal.	.56 @	.60
Benzol, 90%	gal.	.24 @	.25
pure		.30 @	—
Carbon bisulphide	lb.	.06 @	.07
tetrachloride	lb.	.06½ @	.07
Dimethylanliline	lb.	.34 @	.36
Motor gasoline, steel bbls.	gal.	.15 @	—
Naptha, V. M. & P.	gal.	.16 @	—
Toluene	gal.	.31 @	—
Turpentine, spirits	gal.	.87 @	.88
wood	gal.	.82 @	.83

Waxes

Bayberry	lb.	.19 @	.20
Beeswax	lb.	.44 @	.48
Carnauba, No. 1	lb.	.35 @	.39
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.06 @	.06½
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
Paraffine WhiteA.M.P.	lb.	.05¼ @	—
Yellow A.M.P.	lb.	.05 @	—
Sweet wax	lb.	.12 @	—

SUBSTITUTES

Black	lb.	.08½ @	.14
White	lb.	.09 @	.15
Brown	lb.	.10 @	.15
Brown factice	lb.	.08¼ @	.14
White factice	lb.	.08¾ @	.16

VULCANIZING INGREDIENTS

Black hyposulphite	lb.	.18 @	.20
Sulphur Chloride (drums)	lb.	.04 @	.05
Sulphur flour Commercial bags,	cwt.	1.35 @	1.70
" bbls.	cwt.	1.70 @	—
Superfine, bags,	cwt.	2.00 @	2.40
" bbls.	cwt.	2.30 @	2.75
100% pure, refined, bags	cwt.	2.35 @	2.65
bbls.	cwt.	2.60 @	2.90

The Market Place

WHERE TO OBTAIN

Machinery, fabrics, chemicals, compounding ingredients, crude and reclaimed rubber, consulting chemical and engineering services, etc.

ACCELERATORS—X L O and Diphenyl Guanidine.

Dovan Chemical Corp.

30 Church St. New York

ANTIMONY Pentasulphide, golden and crimson, very fine, pure.

Rare Metal Products Co.
Tyler Patterson Co.

Belleville, N. J. Cleveland, Ohio

ASBESTINE—Specially prepared for use in Rubber. Send for liberal working sample.

SOLE PRODUCERS

International Pulp Co.

41 Park Row, New York City

ASBESTINE and other chemicals for the rubber trade.

Cooper & Cooper, Inc.

23 Cliff St. New York City

BARYTES—Resists action of acids, alkalis, oils; 300 mesh.

National Pigments & Chemical Co.

St. Louis, Mo.

BEAD CABLES— National Flat Woven and Pratt Patent Bead Cables.

National Standard Co.

Niles, Mich.

CALENDERS—Embossing, for artificial leather, oil cloth etc.

Textile-Finishing Machinery Co.

83 Exchange Place, Providence, R. I.

CARBON BLACK—*Microne*x the world's standard gas black, universally known as the "King of Rubber Pigments."

Binney & Smith Co.

41 East 42nd St. New York City

To Our Readers

Manufacturers and dealers listed in THE MARKET PLACE are those on whom you can rely for prompt and courteous treatment for all your raw material and equipment requirements. We feel confident that we are rendering both our readers and our advertisers a real service in publishing these listings and should you desire information on other firms or products, the Service Department of THE RUBBER AGE will be pleased to assist you.

CARBON BLACK

nine grades for the rubber industry.

Godfrey L. Cabot, Inc.

938-942 Old South Bldg. Boston
611 Metropolitan Bldg. Akron

CARBON BLACK—*Aerfloted* Arrow Black for rubber compounding. Standard for grit-free uniformity.

J. M. Huber, Inc.

130 West 42nd St. New York

CHEMICALS— Solvents and accelerators. *Clay, whiting* and other compounding materials.

E. L. Bullock & Sons, Inc.

99 John St. New York City

CHEMICALS and compounding ingredients for the rubber trade.

Harshaw, Fuller & Goodwin Co.

Cleveland, Ohio

CHEMICALS and compounding ingredients; Clay, Whiting, Accelerators, Mineral Rubber.

R. T. Vanderbilt Co.

50 East 42nd St. New York City

CHEMICALS and pigments for the rubber trade. Complete stocks carried.

Wishnick-Tumpeer Chemical Co.

Chicago Cleveland Brooklyn

CRUDE RUBBER — All Grades. Washed - Dried - Milled. *Send us Your Inquiries.*

Gibraltar Rubber Corp.

West New York, N. J.

CRUDE RUBBER — All grades. *A dependable concern* for your rubber requirements.

The Kahnheimer Co.

Akron, Ohio

DIXIE CARBON BLACK

Unexcelled in rubber work for toughness and resiliency.

United Oil & Natural Gas Products Corporation

30 Church St., New York City

DRY KILN—for drying crude rubber and chemicals—Hunter Process.

Carrier Engineering Corporation

750 Frelinghuysen Ave. Newark, N. J.

THE MARKET PLACE Section Continued on Next Page.

ALL THE LEADERS

Are represented in this section. Purchasing agents can rely on the concerns listed as thoroughly reliable in every way.

The Market Place

FABRIC BROKER—Spots and Contracts: Tire fabrics, Enameling ducks, Tube Wrapping Tapes.

H. Frank Jones
395 Broadway New York City

FABRICS—Tire fabrics, Egyptian—Peeler, Karded and Combed, Cord and Square.

Cabarrus Cotton Mills
(Cannon Mills, Inc.)
55 Worth St. New York
327 S. La Salle St. Chicago

FABRICS—Tire fabrics—coarse builders, chafers, breakers in all grades.

New England Southern Mills
LAWRENCE & CO.
24 Thomas St. New York
Boston, Philadelphia, Chicago, St. Louis, San Francisco

FABRICS—Tire, cords, enameling ducks, drills, sheetings, osnaburgs.

J. H. Lane & Co.
250 West 57th St. New York City

FABRICS—Tire fabrics of every description, Sea Island, Egyptians, Peelers.

Taylor, Armitage & Eagles, Inc.
120 Broadway New York

FABRICS—Stockinets, Jersey Cloth and Special Fabrics for the Rubber Industry.

U. S. Knitting Co.
Pawtucket, R. I.

FACTICE—Prevents blooming, makes colors fast and a smoother batch.

Stamford Rubber Supply Co.
Stamford, Conn.

GUAYULE—"Duro" Brand washed and dried ready for compounding.

Continental Rubber Co.
120 Broadway New York

HARD RUBBER, quality hard rubber goods of every description.

Vulcanized Rubber Co.
251 Fourth Ave. New York City

HEEL BURRS—with central holes; flat and cupped.

J. H. Sessions & Son
279 Riverside Ave. Bristol, Conn.

METAL BRANDS, TAGS
Name Plates, Labels — Machinery for making.

Roovers Bros.
100 Schermerhorn St.
Brooklyn, N. Y.

MOLDS & CORES—Tire building machines; tire finishing stands; tubing machines; hydraulic presses.

The Akron Standard Mold Co.
Akron, Ohio

YOUR NAME

in this space would be seen by Buyers, Chemists, Engineers and Executives in all rubber plants.

Write for full information

MOLDS & CORES—for automobile tires; general machine work.

Kuhlke Machine Co.
Akron, Ohio

RECLAIMED RUBBER—Uniformity, reliability, cleanliness.

Pequanoc Rubber Co.
Butler, N. J.

RECLAIMED RUBBER—for all purposes.

Rubber Regenerating Co.
Naugatuck, Conn.

RED OXIDE—A special grinding, guaranteed uniform in color and quality.

Joseph A. McNulty
114 Liberty St. New York City

RUBBER—Crude and scrap, all grades.

H. Muehlstein & Co.
Liggett Bldg. New York
Akron, Chicago, Boston, Hoboken

RUBBER SUBSTITUTES
White, brown and black.

Carter Bell Mfg. Co.
150 Nassau St. New York

RUBBER TESTING APPARATUS
Bierer-Davis Rubber Aging Apparatus; Rubber Buffing Machine for preparing tensile strength samples.

Emerson Apparatus Co.
171 Tremont St., Melrose Highlands, Mass.

THE MARKET PLACE Section Continued on Next Page.

The Market Place

SOLVENT RECOVERY EQUIPMENT
50 to 90 Per Cent Recovery
Spadone Machine Co., Inc.
15 Park Row New York
Exclusive Selling Agents for
BENZINE CONDENSATION CO.

TIRE BUILDING EQUIPMENT
MOLDS & CORES
The Akron Rubber Mold & Machine Co.
Akron, Ohio

SOLVENTS — Accurately refined for the rubber industry.
Hartol Products Corporation
192 Market St. Newark, N. J.

VALVES— Tire valves, caps, insides, pressure gauges.
A. Schrader's Son, Inc.
Brooklyn, N. Y.

SULPHUR—*"Tire"* Brand Superfine; *"Tube"* Brand Velvet; quality Sulphur for the rubber trade.
Stauffer Chemical Co.,
of Texas.
Scanlon Bldg. Houston, Texas
San Francisco, Cal. Chauncey, N. Y.

WHITING & PARIS WHITE
manufactured from *Genuine English Chalk* and *Cliffstone*—no adulterations.
Southwark Mfg. Co.
Camden New Jersey

THERMOMETERS–Recording, controlling temperature and pressure controllers.
American Schaeffer & Budenberg Corp.
Berry & South Fifth Sts., Brooklyn

ZINC OXIDES— A Z O, the Super Zinc.
American Zinc Sales Co.
P. O. Box 1428 Columbus, O.
Pierce Bldg. St. Louis
Prudence Bldg. New York

THERMOMETERS— Dial-Indicating, Recorders, Controllers, etc.
C. J. Tagliabue Mfg. Co.
18-88 Thirty-Third St.
Brooklyn, N. Y.

ZINC OXIDES — Including KADOX and "Albalith."
The New Jersey Zinc Sales Company
New York Pittsburgh Chicago
Cleveland San Francisco

Crude Rubber

NEW YORK, Nov. 15, 1924

Rubber manufacturers continue to show little buying interest in crude rubber at present prices. Manufacturing schedules have not been materially decreased but crude is still being sought in small lots for nearby positions. London stocks are down near 36,000 tons, with withdrawals amounting to 938 tons last week.

Very little net change has taken place since our last report. After a few increases to 34⅞ and 35 cents for spot, today's quotations showed a decline of only ⅜c over a period of two weeks. Buyers as a whole have not been active but it is believed that they will have to come into the market very soon.

On the 5th a new high of 35c was reached during the day, but the close was a shade under. It then fell to 34⅜ the next day, largely as a result of heavy selling by speculative holders. A slight increase, however, was noted in the short Saturday session of the 8th when 34¾c was quoted. This rise continued on Monday when 35c was again quoted. Sellers were holding out for higher prices and would make no concessions.

The next day saw a sudden decline to 34¼c, due to lack of interest from buyers and lower cables from London. Interest was shown in January-March positions. A slightly lower level was reached on the 12th as a result of a lack of buying interest and a tendency abroad to unload. Slightly better inquiry was shown on the 13th and yesterday with today's market steady. The lower grades were inactive with very few changes noted. Quotations are:

NEW YORK MARKET

Plantations—			
Ribbed Smoked Sheets.			
Spot	.34⅜	@	—
December	.34⅜	@	—
January-March	.34½	@	—
Apr.-June	.34⅝	@	—
First Latex, crepe, spot	.34⅝	@	—
Amber Crepe No. 1, spot	.33¼	@	—
" " No. 2,	.33¾	@	—
" " No. 3,	.33½	@	—
" " No. 4,	.33¼	@	—
Brown Crepe, Rolled	.33½	@	—
" " Clean, thin	.33⅞	@	—
" " Specky	.33	@	—
Scrap, Colombo No. 1	.25	@	—
Pontianac—			
Prime Pressed	.13	@	.14
Palembang	.08	@	—
Bangermassin	.06½	@	.07½
Sarawak	.07	@	.07¼
Paras—			
Up-river Fine	.34	@	—
" Medium	.31¼	@	—
" Coarse	.24	@	—
Islands, fine	.28½	@	—
Madeira Fine	.35	@	—
Acre Bolivian, fine	.33	@	—
Cut Beni Bolivian, fine	.33¾	@	—
Tapajos, fine	.31½	@	—
Caucho Ball—			
Upper, shipment	.24	@	—
Centrals—			
Central, scrap, prime	.24	@	—
Corinto, scrap	.22½	@	—
Esmeralda, sausage	.24	@	—
Guayule, w and d	.28	@	—
Africans—			
Benguela, No. 1	.17	@	—
" No. 2	.16	@	—
Congo, upper, black	.26	@	—
" " red	.25	@	—
Kassai, Prime Red	.25	@	—
Balata—			
Block, Columbia	.54	@	.56
" Cuidad	.63	@	.64
Surinam, sheet	.76	@	.77
Gutta Percha—			
Siak	.18	@	—
Red Macassar	3.00	@	3.20
Chicle—			
Mexican, Yucatan	.64	@	.68

LONDON MARKET

Standard Ribbed Smoked Sheets—	
Spot	17⅛d
December	17⅛
Jan.-Mar.	17½
Apr.-June	17⅝

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—	
Spot	16¾d
December	16¾
Jan.-Mar.	16⅝
Apr.June	16½

Market Inactive

As we go to press the crude rubber market continues inactive. Stocks in London were reduced 469 tons, making stocks now held total 25,584. Advices from Ohio reported that production continues along steady lines, with stocks of crude rubber being steadily reduced. Despite this fact, however, consumers show no desire to make further commitments in the hope that the market will react to the 33 cent level. The bulk of current arrivals have been sold ahead under contract and few speculative holders control any rubber.

Index to Advertisers

Akron Rubber Mold & Machine Co..... 128
Akron Standard Mold Co..... 127
American Schaeffer & Budenberg Corp..... 128
American Zinc Sales Co..... 105 - 128

Binney & Smith Co.....121 - 126 Back Cover
Bullock & Sons, Inc., E. L..... 126

Cabarrus Cotton Mills..... 111 - 127
Cabot & Co., Godfrey L..... 113 - 126
Carrier Engineering Corp..... 126
Carter Bell Mfg. Co., The..... 108 - 127
Classified Advertising..... 121
Continental Rubber Co..... 127
Cooper & Cooper..... 126

Dovan Chemical Co..... 107 - 126

Emerson Apparatus Co..... 127

Gibraltar Rubber Corporation..... 126

Harshaw, Fuller & Goodwin Co..... 126 - 130
Hartol Products Corp..... 128
Huber, J. M., Inc..... 108 - 126

International Pulp Co..... 106 - 126

Jones, H. Frank..... 127

Kahnheimer Co..... 126
Kuhlke Machine Co..... 109 - 127

Lane, J. H., & Co..... 123 - 127
Lawrence & Co..... 127

McNulty, Joseph A..... 127
Muehlstein & Co., Inc., H..... 127

National Pigments & Chemical Co..... 126
National Standard Co..... 109 - 126
New Jersey Zinc Co..... 128

Pensacola Tar & Turpentine Co..... 129
Pequanoc Rubber Co..... 127

Rare Metals Products Co..... 126
Revue Generale du Caoutchouc..... 130
Roovers Bros..... 127
Ross Gould Co..... 121
Rubber Regenerating Co..... 127

Schrader's Sons, Inc..... 101 - 128
Sessions & Sons, J. H..... 127
Southwark Mfg. Co..... 128
Spadone Machine Co..... 128
Stamford Rubber Supply Co..... 127
Stauffer Chemical Co..... 128

Tagliabue Mfg. Co., C. J..... 128
Taylor, Armitage & Eagles Co., Inc..... 124 - 127
Textile-Finishing Machinery Co., The... 108 - 126

United Oil & Natural Gas Products Corporation 126
U. S. Knitting Co..... 127

Vanderbilt, R. T., Co..... 126 - Front Cover
Vulcanized Rubber Co., The..... 113 - 127

Wishnick-Tumpeer Chemical Co..... 126

The Market Place..... 126 - 127 - 128

No. 6 of a series of six *6. Uses*

What is Tar?

Its Uses

The Rubber and Cordage industries are probably the largest users of Pine Tar.

Both lines require tars of varying gravity, color and other characteristics. The Cordage trade, in some instances, have preferred Kiln Tar because of its light brown color and drying properties.

Most rubber concerns require uniformity of product, dependable source of supply, freedom from dirt, water, etc., and use RETORT TAR as no other tar meets these requirements.

Many concerns which have been large users of Kiln Tar have gone over to RETORT grades as they are now produced in quantities and qualities to meet any need.

Oakum, Electrical goods, Drug, Waterproofing, Mining, Paint and many other industries are large consumers of Pine Tars.

Rubber manufacturers may obtain a reprint of this series of six advertisements and other interesting information by writing to us today.

We shall be glad to cooperate with and assist any rubber manufacturer in the selection of the proper tar for any of the various needs in his products Send us your specifications. The tar you are using may be satisfactory but perhaps a different blend will give similar results at less cost.

PENSACOLA TAR & TURPENTINE CO.
GULL POINT, FLORIDA

The largest individual producer of Distilled Pine Products

"SILVER SHEEN"

MICA

NON-METALLIC WATER GROUND

Highest Grade for Rubber Industries

Pure—finely powdered—For use in tread stocks, repairing tires, in air bags, inner tubes and various kinds of molded mechanical goods.

Desirable as it is a Toughener and Heat Resister

THE HARSHAW FULLER & GOODWIN CO.

CLEVELAND, OHIO

SALES AGENTS
for
RICHMOND MICA CORPORATION
RICHMOND, VA.

Stocks Carried at

Cleveland O. Richmond, Va.

REVUE GENERALE DU

CAOUTCHOUC

New monthly trade and technical paper covering all phases of the rubber trade in France.

Annual Subscription in United States—40 francs.
Single Copy—5 francs.

REVUE GENERALE DU CAOUTCHOUC
18, Rue Duphot
Paris (1er)

REVIEW DESK

(*Continued from Page* 122)

wire-mesh screens. Careful men should be selected for this work because there is considerable danger of falling from the beams and rafters where the rubber is hung to dry. The steam pipes or coils in vacuum driers and kilns should be protected by screens so that neither the stock nor the employees can come in contact with hot surfaces.

Mixing mills should also be arranged so that they can be stopped almost instantly in case of emergency as the rolls turn inward where the rubber enters, and there is considerable danger of the workers getting their hands caught and drawn in between the rolls. An individual-motor drive, together with a well-designed clutch and brake, controlled by a rod that extends the entire width of the mill are essential for safety. The same kind of safeguards and quick-stopping devices should be provided for calenders. If there appear to be any chemical hazards due to the fact that the heat used to warm the rolls drives off fumes, exhaust hoods and exhaust ventilation should be used in calender rooms.

Pressure vulcanizers should be provided with safety-valves and an air vent should be installed at the highest point of every vulcanizer. These vents should be opened before opening the doors after a heat has been run. The doors should never be opened until the steam has been thoroughly exhausted from the container, and the pressure, inside and out, fully equalized. Vulcanizers, which are frequently sprayed or flooded with cold water to stop the cure, should be inspected frequently to detect signs of deterioration caused by the sudden change in temperature.

The hazards associated with handling chemicals and compounding ingredients are also given consideration in this well-written article.

* * *

TAG GENERAL CATALOG. No. 625. 8½" x 11". 216 pp. Bound in blue cloth; stamped in gold. C. J. Tagliabue Manufacturing Co., Brooklyn, N. Y.

In this ambitious volume Tag industrial thermometers applicable to all industries are described and illustrated. A section is devoted to combustion, to fuel and furnace conditions and the value of Tag-Mono Duplex Records in obtaining efficient combustion is explained in detail.

The descriptions of the operation of various Tag automatic controllers are not only clear and easily digested but leave few questions unanswered in the minds of interested readers. Cross sections and diagrams add to the lucidity of the text and the numerous photographs of typical installations in many industries impress the reader with the sound worth of Tag instruments.

* * *

WORK-LIGHT. 5" x 8¼". 32 pp. Bound in heavy board. Published for limited distribution to manufacturing executives, industrial engineers and architects by the Cooper Hewitt Electric Co., 95 River St., Hoboken, N. J.

This attractive booklet deals in a slightly technical manner with what is usually considered a deeply technical subject. The importance of good light is stressed in the introdution. Six chapters dealing with various phases of Cooper Hewitt illumination make up the balance of the work. Peter Cooper Hewitt's experiments to produce an efficient light led him to specialize on mercury vapor as an illuminant. The long tube, which is today the distinguishing mark of the Cooper Hewitt lamp, made possible for the first time the practical use of mercury vapor light—a consumation which had long been devoutly desired in the lighting field because previous experiments had proven that the predominating rays in mercury vapor light fell in that part of the spectrum which produced maximum visibility—the yellow green.

A chapter is devoted to the economy of work-light, to its installation, and to its maintenance.